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Indian Wells Valley Deep Well Drilling Project

Volume 1. Data Report (1990–1992)

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OCTOBER 1995

NAVAL AIR WEAPONS STATION
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Naval Air Weapons Station China Lake

FOREWORD

The research described in this report was performed at the Naval Air Weapons Station China Lake, Calif., during fiscal years 1990 through 1992 as part of a collaborative effort to define the geohydrologic conditions in the Indian Wells Valley and adjacent canyons. The project was jointly financed and coordinated by the Naval Air Weapons Station China Lake, United States Bureau of Reclamation, Indian Wells Valley Water District, and North American Chemical Company.

The results of this project are reported in a two-volume series and were reviewed for technical accuracy by Thomas Campbell.

Approved by
A. S. RITCHIE
Capt. U.S. Navy
Public Works Officer
1 October 1995

Under authority of
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13. ABSTRACT *(Maximum 200 words)*

(U) The primary objective of the well-drilling project was to refine the geohydrologic conditions in the IWV and adjacent canyons. All wells were drilled between August 1990 and September 1992. Ten well sites were selected using the following criteria: (1) existing geohydrologic condition, (2) interpretion of geophysical surveys, (3) depth to water, (4) potential recharge zone determination, and (5) density of existing well-related data in the area. A location map and description of the drilling procedure for each well is provided. Well data collected included formation samples, electric logs, depth to groundwater, transmissivity estimates, hydraulic connections, and temperature-gradient logs. Water quality analyses and depth-to-groundwater measurements were performed on all completed wells. Appendixes A through E consolidate these data for review.

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CONTENTS

INTRODUCTION

In 1990, the Naval Air Weapons Station (NAWS) China Lake, Calif., entered into a memorandum of understanding with the United States Bureau of Reclamation (BR), Indian Wells Valley Water District (IWVWD), and North American Chemical Company (NACC) to drill a series of deep test wells to characterize the geohydrologic conditions in the Indian Wells Valley (IWV).

Ten deep test wells were drilled between August 1990 and September 1992. The drilling of seven wells, designated as BR-1 through BR-6 and BR-10, was funded through a cooperative agreement between the sponsoring agencies. The IWVWD funded the drilling of Monitor Well (MW)-32 and the Neal Ranch (NR)-1 and NR-2 wells.

All wells were drilled to approximately 2000 feet and multiple-cased to 4 feet per borehole. The SNORT well, so named because of its proximity to China Lake's Supersonic Naval Ordnance Research Track, was drilled by the Geothermal Program Office as part of the Geothermal Exploration Project.

The primary objective of the well drilling program was to define the geohydrologic conditions in the IWV and adjacent canyons. All data were collected between August 1990 and September 1992. Appendixes A through E consolidate these data for review.

TEST WELL LOCATIONS

Each member of the Technical Subcommittee submitted a prioritized list of 10 potential test well locations accompanied by a brief rationale for selecting each location. Selection criteria for the 10 sites chosen from the initial list of 16 included the following:

1. Existing geohydrologic condition
2. Interpretation of geophysical surveys
3. Depth to water
4. Potential recharge zone as determined by the existing isohyetal (a line on a map connecting areas of equal rainfall) maps and meteorological data
5. Completeness of existing well-related data in the area

A final prioritized list was made denoting the geographic positions of the test wells. This list included the township, range, and section location of each well. The exact drilling site for each test well was guided by (1) approachability, (2) environmental and safety concerns, and (3) land ownership. All wells were located on public lands to eliminate any future land accessibility problems.

The location of each test well and a rationale for drilling at each site follows in order of decreasing priority.

SITE 1. T27S/R38E—SECTION 23 (BR-1)

Exposures of Pleistocene sediments, coupled with Bouger gravity and refraction studies, indicate the potential for a groundwater divide and/or a structural high in the southwest portion of the IWV. Hydraulic conductivity in BR-1 could be much lower than in the Valley fill, which could impact the estimate of recharge to the Valley from the southwest watersheds.

SITE 2. T27S/R38E—SECTION 11 (BR-2)

The relationship of the water level, water quality, and geologic log of BR-2, as compared to similar attributes in BR-1, may lend insight into the area, which has been modeled as one of the largest recharge sources to the Valley. Distinct water quality and water level differences may exist between BR-1 and BR-2 based on the subsurface configuration of the potential structural high.

BR-2 was completed in Section 02.

SITE 3. T27S/R39E—SECTION 10 (BR-3)

BR-3 was selected to explore the southern portion of the Intermediate Wellfield. Water quality at depth could have some bearing on the long-term operation of the Intermediate Wellfield. Because the valley-fill sediments may be interfingered Sierran-derived sediments and sediments from the El Paso Mountains, a notable difference may exist in hydraulic conductivity when compared to the wells on the west side of the Valley.

BR-3 was completed in Section 11.

SITE 4. T26S/R40E—SECTION 26 (BR-4)

The water quality and stratigraphy below the pumping horizon of the wellfield at BR-4, located in the middle of the Intermediate Wellfield, are of particular interest because of their potential to affect overall wellfield water quality. The refraction survey shows a distinct velocity increase at a depth of approximately 1300 feet—the proposed top of the Ricardo Formation. The existence of an upwelling of deep water into the Intermediate Wellfield has been suggested.

SITE 5. T25S/R38E—SECTION 34 (BR-5)

The Bouger gravity, magnetic, and refraction surveys indicate a potential depositional basin to the east and northeast of BR-5. The geologic and geophysical logs

from BR-5, NR-1, and NR-2 should indicate the depositional history of the area and extent of the apparent fine-grained deposits. The water quality data may have an impact on future groundwater pumping distribution in the western portion of the Valley. The water table elevation at BR-5, when compared to the NR wells, will indicate the recharge gradient.

SITE 6. T25S/R38E—SECTION 10 (BR-6)

The Sierra Nevada watershed, west of BR-6, was modeled as one of the larger recharge sources for the Valley. The BR-6 site also appears to be located above the depositional basin as defined by previous surveys. The combined geologic and geophysical logs from the BR-6 and BR-7 sites should indicate the depositional history of the area in addition to the presence and extent of any fine-grained deposits. The water quality data should indicate the potential for future pumping distribution. The water table elevation at BR-6, when compared with BR-7, will indicate the recharge gradient.

BR-6 was completed in Section 12.

SITE 7. T25S/R30E—SECTION 08 (BR-7)

BR-7 is a "companion" site to BR-6. Data collected from BR-7 will augment the data collected from BR-6. Answers to the following questions may be determined:

1. How extensive is the fine-grained material?
2. How representative is the water quality variation at depth?
3. How steep is the water table gradient in the area?

SITE 8. T25S/R39E—SECTION 34 (BR-8)

Although the BR-8 well was not completed because of funding constraints, the site was selected based on a previous geologic survey. The vertical and horizontal extent of the Pleistocene deposits in the area may impact the long-term pumping potential of the area. The groundwater yield from the deposits is suspected to be very low and, in many cases, water quality is poor.

SITE 9. T25S/R39E—SECTION 30 (BR-9)

A deep well in the China Lake Playa area would provide insight into the depositional history of the Valley. The indication of a Pleistocene depositional basin in the northwest portion of the Valley suggests that the center of the fine-grained deposition was not always on the east side of the Valley. Is there potential for groundwater production below the playa? The horizontal and vertical extent of these deposits in the aquifer horizon can have significant impact on future pumping distribution decisions because the groundwater yield from these deposits is low and, in many cases, the water quality is poor.

The BR-9 well was not completed because of funding constraints.

SITE 10. T24S/R38E—SECTION 22 (BR-10)

Nine Mile Canyon is estimated to be a relatively large contributor of recharge to the northwest portion of the Valley. Water quality differences with depth may yield insight as to the depth of section through which the recharge flows. BR-10 also was selected because of the potential depositional center migration during recent geologic time. BR-10 was completed in Section 21.

DRILL HOLE COMPLETIONS

A brief narrative of the drilling procedure and completion description of each well follows in order of well location priority. A location map (Figure 1) is provided.

BUREAU OF RECLAMATION (BR) WELLS

BR-1

BR-1 is approximately 200 feet west of Red Rock Road and 5.2 miles south of Inyokern. Drilling by the Southern California Drilling Company began on 15 February 1991 and was completed on 5 March 1991. The 12 1/4-inch borehole was drilled to a depth of 1910 feet. The drilling rate was relatively consistent until a depth of 1700 feet. The drilling time per 30-foot joint to 1700 feet was approximately 1 hour. From 1700 to 1830 feet, the time required for drilling per joint increased to 2 hours. The drilling of the last full 30-foot joint took approximately 6 hours. Although the change in penetration rate per joint is characteristic of drill-bit failure, the bit was reported to be in relatively good shape. Four wells were set, with the bottom of the 20-foot sections of screen at 1770, 1520, 1060, and 635 feet below the surface.

BR-2

BR-2 is approximately 1 1/4 miles south of Highway 178 at the south end of Sierra Vista Road. Drilling by the Southern California Drilling Company began on 1 October 1990 and was completed on 24 October 1991. The 12 1/4-inch borehole was drilled to a depth of 2020 feet. The penetration rate was relatively consistent throughout the borehole. Three wells were set with the bottom of the 20-foot sections of screen at 1960, 1480, and 640 feet below the surface.

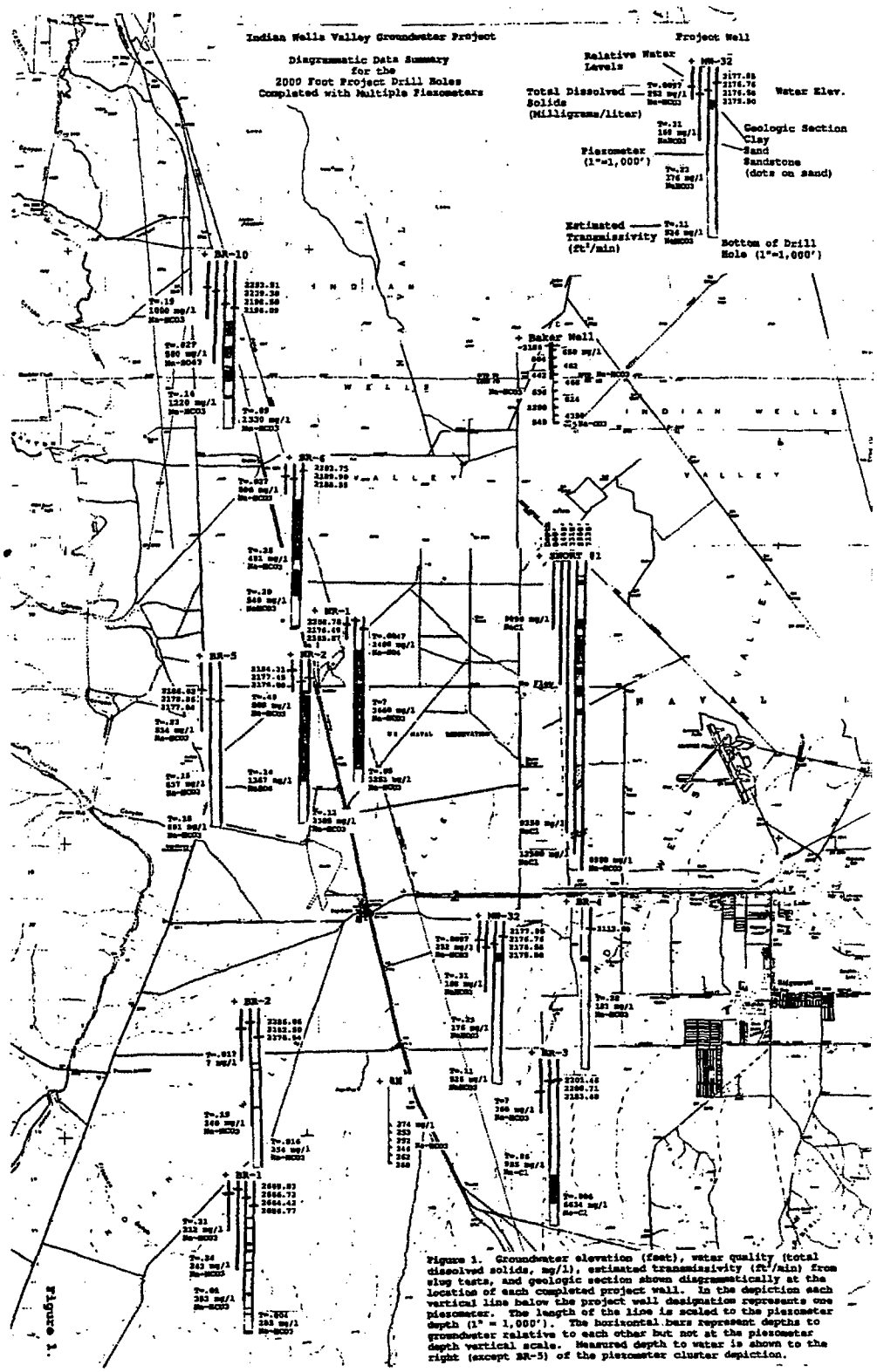


FIGURE 1. Test Well Map Location.

BR-3

BR-3 is located approximately 100 feet south of Bowman Road and 1500 feet east of Highway 395. Drilling by the Southern California Drilling Company began on 16 March 1991 and was completed on 19 March 1991. The 12 1/4-inch borehole was drilled to a depth of 2024 feet. The penetration rate was relatively constant. Three wells were set with the bottom of the 20-foot sections of screen set at 1870, 1340, and 670 feet below the surface.

BR-4

BR-4 is located approximately 600 feet south of Inyokern Road and 300 feet west of the north-south dirt road on the eastern section line of Section 26 (T26S/R40E). Drilling by the BR began on 28 August 1990 and was completed on 27 September 1990. The borehole was drilled to a depth of 2020 feet and electric-logged. After the deep piezometer was set, the previously set filter-pack tremie pipe could not be moved. The deep piezometer was removed from the hole, and 3 days were spent removing the tremie pipe from the borehole. Because the annulus appeared to be increasingly packed with sand, the Technical Subcommittee decided to install just one piezometer in the remaining open hole. One well was set with the bottom of the 20-foot sections of screen at 1200 feet below the surface.

BR-5

BR-5 is located approximately 200 feet west of Highway 395 and one-half mile north of the Leliter Road and Highway 395 intersection. Drilling by the Welch and Howell Drilling Company began on 19 December 1991 and was completed on 3 January 1992. The borehole was drilled to a depth of 1014 feet with a 14 3/4-inch bit. A 12 1/4-inch bit was used to drill out the remaining 2013 feet. The drilling rate was relatively consistent. Coarse alluvial fill, mostly sand, was penetrated to the total depth of the hole. Three wells were set with the bottom of the 20-foot sections of screen at 1980, 1610, and 870 feet below the surface.

BR-6

BR-6 is located just inside the NAWS China Lake west boundary that parallels Brown Road, along a dirt road—an eastern extension of the east-west section of Brown Road. Drilling by the Welch and Howell Drilling Company began on 6 January 1992 and was completed on 17 January 1992. The hole was drilled to a depth of 1008 feet with a 14 3/4-inch bit. Total clay thickness penetrated by the hole was significant. Drilling rates were fairly consistent while penetrating sand and clay units.

Three wells were completed with the bottom of the 20-foot sections of screen at 1660, 1210, and 350 feet below the surface.

BR-10

BR-10 is located about one-tenth mile southeast of the intersection of Highway 395 and Nine Mile Road in the northwest portion of the IWV. Drilling by the Welch and Howell Drilling Company began on 24 August 1992 and was completed on 12 September 1992. The hole was drilled with a 17 1/2-inch bit to a depth of 591 feet, a 14 3/4-inch bit to 1002 feet, and a 12 1/4-inch bit to 2005 feet. The cuttings from 680 to 1440 feet are described as clays; however, the electric logs indicate significant sands interbedded with the clays. Four piezometers were set with the bottom of the 20-foot sections of screen at 1950, 1580, 1200, and 660 feet below the surface.

Neal Ranch Wells, Monitor Well 32, and SNORT Well

NR-1, NR-2, and MW 32, all completed by the IWVWD, are to be used for geohydrologic data collection purposes only. All three wells were completed as a standard project test well. The Navy's SNORT test well was drilled by the Welch and Howell Drilling Company as part of the Geothermal Program Office exploration efforts in the IWV.

NR-1

NR-1 is located in the northeast portion of the Neal Ranch property (T25S/R38E). Drilling by the Southern California Drilling Company began on 7 January 1991 and was completed on 19 February 1991. The 12 1/4-inch borehole was completed to a depth of 2012 feet. An extremely thick and continuous clay section was penetrated by the hole. The top of the clay lies at a depth of 340 feet, and the bottom lies at 1810 feet. Three wells were set, with the bottom of the 20-foot sections of screen at 1980, 1190, and 270 feet below the surface.

NR-2

NR-2 is located in the southwest comer of the southwestern block of the Neal Ranch Property. Drilling by the Southern California Drilling Company began on 4 February 1991 and was completed on 15 February 1991. The 12 1/4-inch borehole was drilled to a depth of 1994 feet. A thick section of clay also penetrated the borehole. The top of the clay is at a depth of 445 feet, and the bottom lies at about 1490 feet. Three wells were set with the bottom sections of screen at 1930, 1560, and 350 feet below the surface.

MW-32

MW-32 is located about 600 feet west of Victor Street and 1200 feet south of Highway 178. Drilling by the Southern California Drilling Company began on 23 September 1991 and was completed on 8 October 1991. The 12 1/4-inch borehole was drilled to a depth of 1968 feet. The section that was penetrated displayed a sandy alluvial fill with little silt or clay. Four wells were set with the bottom of the 20-foot sections of screen at 1920, 900, and 360 feet below the surface.

Supersonic Naval Ordnance Research Track (SNORT) Well

The NAWS China Lake Geothermal Program Office allowed for the perforation of two intervals in the upper portion of the geothermal exploration test well, which is located in the central portion of the IWV. Based on the drilling rates, geologic descriptions, and electric logs, the Technical Subcommittee selected 840 to 880 and 1430 to 1470 feet below surface as the appropriate depth intervals.

The SNORT well is located about 1 mile northwest of the north end of SNORT. Drilling by the Welch and Howell Drilling Company began on 8 September 1991 and was completed to a total depth of 7394 feet on 30 September 1991.

WELL DATA COLLECTED

Information collected from each of the piezometers included formation samples taken at 10-foot intervals throughout the section, electric logs, water quality analyses, depth-to-water measurements every 2 months, slug tests for transmissivity estimations, hydraulic connection tests, and temperature-gradient logs. All data collected at each well site, including detailed temperature-gradient logs, can be found in the appendixes.

Formation Samples

Formation samples were taken at 10-foot intervals during the drilling operation. Direct rotary methods were used to drill all the wells. Steady flows of drilling muds carrying formation samples were grabbed prior to entering the mud pits for recirculation into the drill stem. Each sample was analyzed and logged by a member of the Technical Subcommittee. Once logged, the samples were analyzed in a certified laboratory. These data were used to correlate various geologic units, thickness of the units, relationships between depth of groundwater and groundwater quality, and prediction of groundwater yield to a well.

Electric Logs

A suite of borehole geophysical tests was conducted at each well site. The suite included caliper tests and gamma, resistivity, self-potential, and temperature logs. The tests were used for correlation and comparison of geologic units and water-quality parameters.

Depth to Groundwater

Each well was measured for depth-to-groundwater information after completion. Each well was surveyed for land surface elevation relative to mean sea level. The data will be used for trend analysis with respect to groundwater depth and elevation fluctuations over time.

Slug Tests/Transmissivity Estimates

A pneumatic slug test was performed at each of the test wells, and the recovery rate was recorded to estimate the transmissivity of the formation opposite the screened interval. The pneumatic technique, with an electric data-logging device used in conjunction with downhole pressure transducers, is a recent advancement and increases the range and application of slug tests. The method in well-digging technology involves either injecting air into a sealed well to lower the water level or applying a partial vacuum to a sealed well to raise the water level. The recovery rate within the well is then recorded and an estimation of transmissivity is made. Slug test data are not presented in this report; however, estimated transmissivity values are included in the well completion diagrams.

Hydraulic Connection Tests

Slug test equipment also was used to test for an "open" hydraulic connection between the screens of each well. To conduct the test, the electric sounder was lowered to approximately 0.02 foot above the water level in the next to deepest piezometer. The pneumatic slug test wellhead assembly was secured to the deepest piezometer, and air from a SCUBA tank was used to bring the pressure in the well up to about 15 pounds per square inch (psi). Testing continued by moving the electric sounder and wellhead assembly to the next piezometer up-hole. An open connection between screens through the annulus could provide a conduit for pressure transmission, which would manifest itself by a rise in piezometer water level subsequent to pressurizing the next piezometer down-hole. Water level changes in the nearest up-hole piezometer were not observed during any of the tests.

Temperature logs

Temperature logs were completed at each of the deepest piezometers. Each of the wells was logged by lowering the temperature tool down the hole at the rate of 5 feet per minute. Both the NAWS China Lake Geothermal Program Office and NACC were responsible for temperature logging.

WATER QUALITY ANALYSES

Water samples were collected from each piezometer near the end of the air lift development procedure. Water was air lifted for about 12 hours for each piezometer at 5 to 10 gallons per minute, based on the drillers' reports. The water samples were submitted to a California certified laboratory for water quality in accordance with California Code of Regulations Title 22 standards.

The water samples were believed to be representative of aquifer water; however, poor development is suspected in some of the piezometers based on slow water-level recovery rates estimated during the slug tests. Some constituent concentration differences between filtered and unfiltered water samples from MW-32 also suggest less than full development.

DEPTH-TO-GROUNDWATER MEASUREMENTS

Depth to groundwater in each piezometer was measured each time the BR hydrologist visited the Valley during the test well-drilling activities. Since that time, the wells have been incorporated into a Valley-wide water level monitoring program. All measurements were recorded with a 1000-foot electric water level sounder. The cable on the sounder is the same as a 300-ohm, twin-lead, television antenna wire calibrated at 0.05-foot intervals. Some piezometers have fewer depth-to-groundwater measurements than others. The number of depth-to-groundwater measurements is a function of the date the well was completed. The later the well was completed, the fewer measurements were recorded.

All depth-to-groundwater measurements were made from the top of each piezometer. On the depth-to-water data sheet, the column headed "TOC to TOP" is the distance, in feet, from the top of the casing (TOC), or large-diameter surface casing, to the top of the piezometer (TOP). Water level elevation is equal to the TOC minus the sum of depth to water and TOC to TOP.

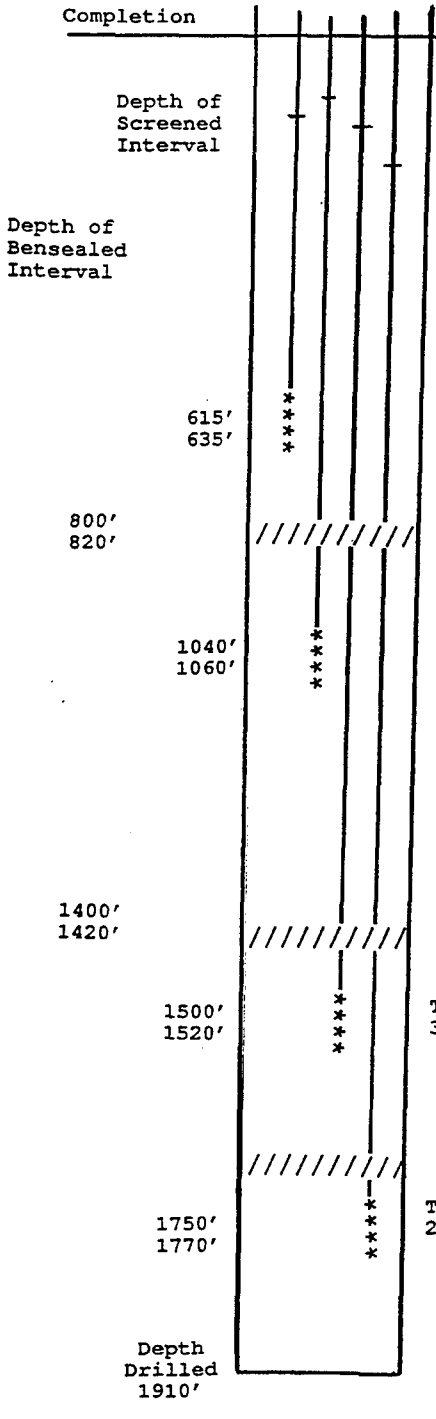
The TOC elevation was established at a mark on the casing as determined by the BR. The elevation survey was considered closed, and the closure error and length of the run were noted. A closed survey begins and ends at the same known elevation point. The difference between the starting elevation and ending elevation at the known elevation point is an indication of the survey quality.

Both BR-3—a medium well—and MW-32—a shallow well—had an oil film on the inside of the piezometer pipe above the water table. The film was especially heavy in BR-3. Based on a chemical analysis conducted by the NACC, the oil probably came from the air compressor used for well development or air lift.

Appendix A
DIAGRAMMATIC COMPLETION AND DATA SUMMARY SHEETS

Indian Wells Valley Groundwater Project (IWVGWP)*
Diagrammatic Completion and Data Summary Sheet

**** Well BR-1 ****
4 - 2" Piezometers



Notes

T = Transmissivity. See note below on slug tests.

mg/L = Total filterable residue at 180 C in milligrams per liter.

DRILL SITE:
The well is located about 200 feet west of the Red Rock-Inyokern Road about 5.2 miles south of Hwy. 178.

DRILLING METHOD:
Direct rotary with bentonite mud. 12 1/4 inch roller cone bit from surface to total depth.

HOLE COMPLETION:
Installed four 2" diameter steel pipes with a 20′ two inch diameter screen on the bottom of each.

DEVELOPMENT:
Each piezometer was air-lifted for about 12 hours and discharged an estimated 5-10 gallons per minute. Water samples for lab analysis were collected at the end of development.

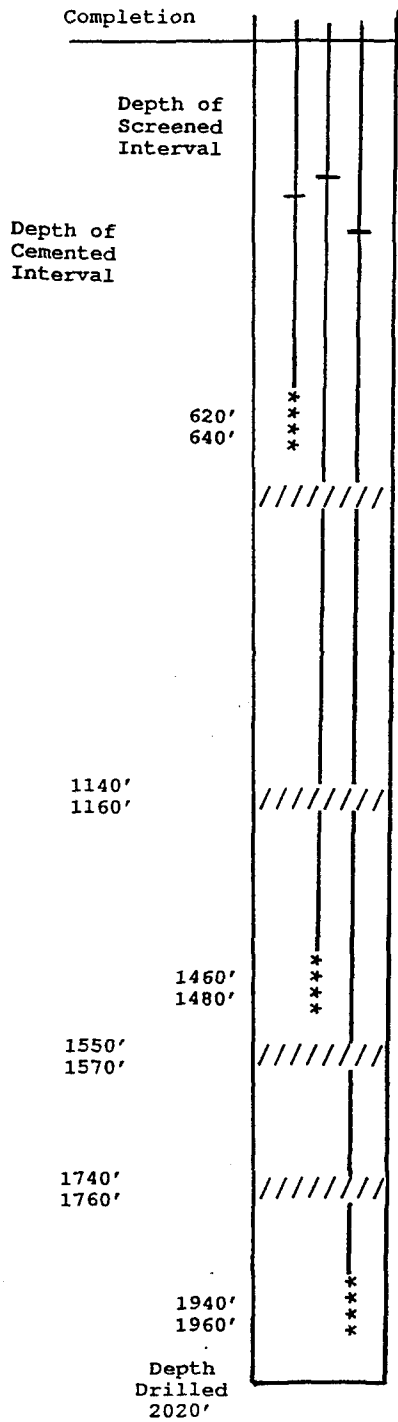
DEPTH TO WATER:
All depths reported below were measured on October 22, 1991 from the top of the protective casing.

SLUG TEST RESULTS:
Estimated transmissivity (T) (ft^2/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.

* The IWVGWP (1990-1992) was a cooperative endeavor by Indian Wells Valley Water District, China Lake Naval Weapons Center, North American Chemical Company, and the U.S. Bureau of Reclamation to install nested piezometers, such as the one shown, in holes drilled to 2000 +/- feet.

Indian Wells Valley Groundwater Project (IWVGWP)*
Diagrammatic Completion and Data Summary Sheet

**** Well BR-2 ****
3 - 2" Piezometers



Notes

T = Transmissivity. See note below on slug tests.

mg/L = Total filterable residue at 180 C in milligrams per liter.

DRILL SITE:
The well is located about 1 1/4 miles south of Hwy. 178 at the end of Sierra Vista Road.

DRILLING METHOD:
Direct rotary with bentonite mud. 12 1/4 inch roller cone bit from surface to total depth.

HOLE COMPLETION:
Installed three 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each.

DEVELOPMENT:
Each piezometer was air-lifted for about 12 hours and discharged an estimated 10 gallons per minute. Water samples for lab analysis were collected at the end of development.

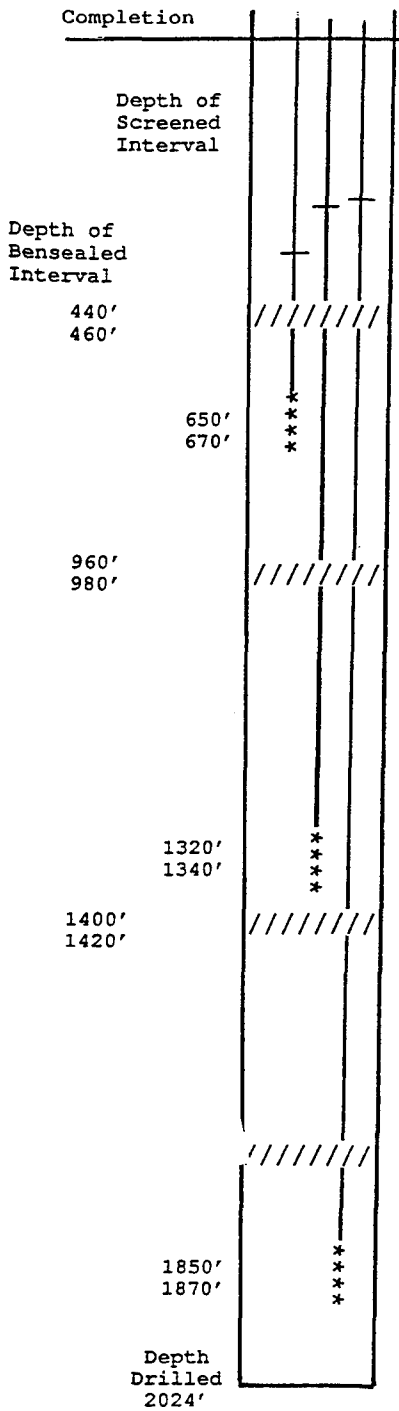
DEPTH TO WATER:
All depths reported below were measured on October 22, 1991 from the top of the outer casing.

SLUG TEST RESULTS:
Estimated transmissivity (ft^2/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.

* The IWVGWP (1990-1992) was a cooperative endeavor by Indian Wells Valley Water District, China Lake Naval Weapons Center, North American Chemical Company, and the U.S. Bureau of Reclamation to install nested piezometers, such as the one shown, in holes drilled to 2000 +/- feet.

Indian Wells Valley Groundwater Project (IWVGWP)*
Diagrammatic Completion and Data Summary Sheet

**** Well BR-3 ****
3 - 2" Piezometers



Notes

T = Transmissivity. See note below on slug tests.

mg/L = Total filterable residue at 180 C in milligrams per liter.

DRILL SITE:
The well is located on the south side of Bowman Road about 1500 east of Hwy. 395.

DRILLING METHOD:
Direct rotary with bentonite mud. 12 1/4 inch roller cone bit from surface to total depth.

HOLE COMPLETION:
Installed three 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each.

DEVELOPMENT:
Each piezometer was air-lifted for about 12-20 hours and discharged an estimated 5-10 gallons per minute. Water samples for lab analysis were collected at the end of development.

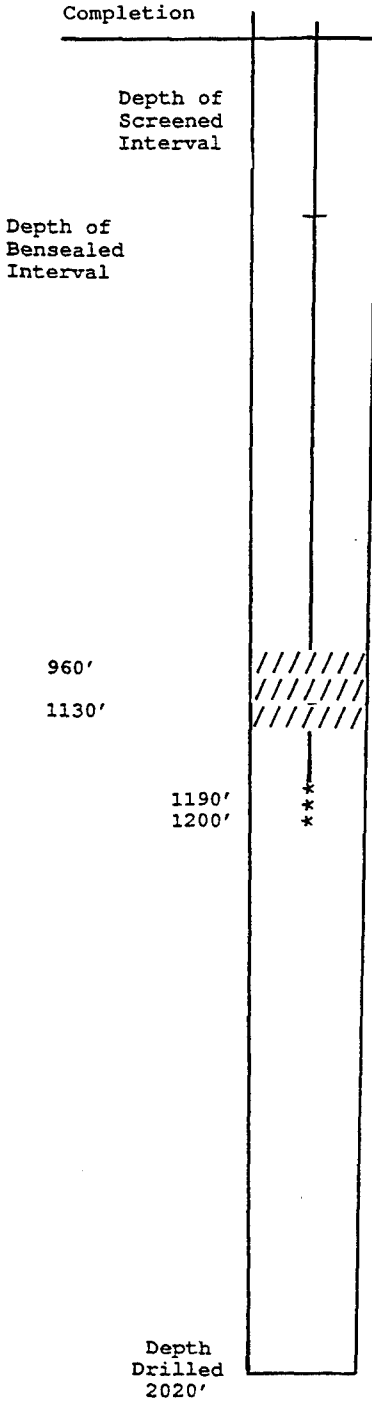
DEPTH TO WATER:
All depths reported below were measured on December 12, 1991 from the top of the outer casing. Shallow was measured with temperature logger.

SLUG TEST RESULTS:
Estimated transmissivity (ft^2/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.

* The IWVGWP (1990-1992) was a cooperative endeavor by Indian Wells Valley Water District, China Lake Naval Weapons Center, North American Chemical Company, and the U.S. Bureau of Reclamation to install nested piezometers, such as the one shown, in holes drilled to 2000 +/- feet.

Indian Wells Valley Groundwater Project (IWVGWP)*
Diagrammatic Completion and Data Summary Sheet

**** Well BR-4 ****
1 - 2" Piezometer



Notes

T = Transmissivity. See note below on slug tests.

mg/L = Total filterable residue at 180 C in milligrams per liter.

DRILL SITE:
The well is located about 600 feet south of Hwy. 170, 1.05 miles west of Jack Ranch Road.

DRILLING METHOD:
Direct rotary with bentonite mud. 7 7/8 inch roller cone bit to total depth. Reamed to total depth with a 10 1/4 inch roller cone bit.

HOLE COMPLETION:
Installed one 2" diameter steel pipe with a 10' two inch diameter screen on the bottom.

DEVELOPMENT:
The piezometer was air-lifted and discharged an estimated 5-10 gallons per minute. The water sample for lab analysis was collected at the end of development.

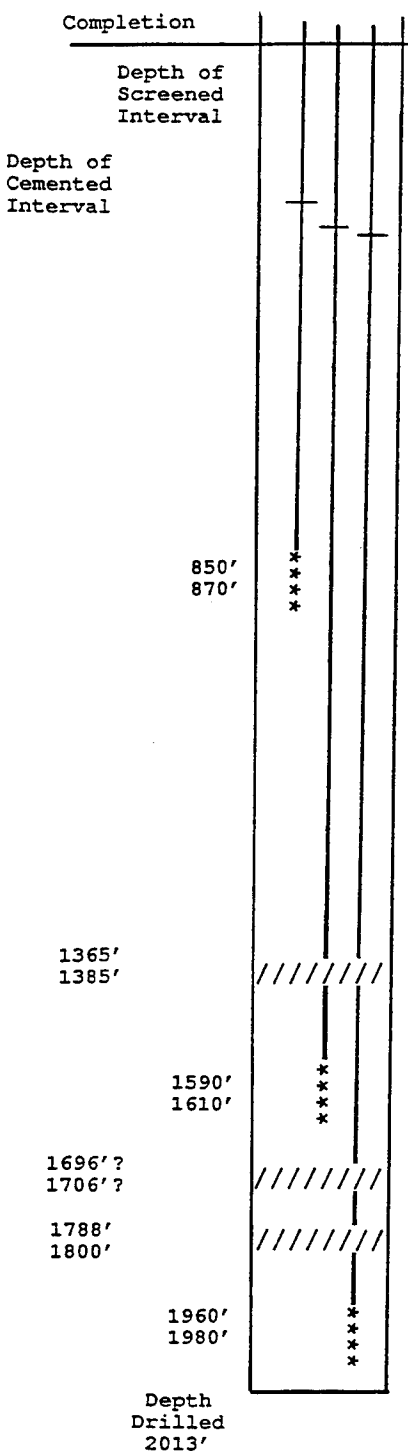
DEPTH TO WATER:
Depth was measured on December 12, 1991 from the top of the outer casing.

SLUG TEST RESULTS:
Estimated transmissivity (ft^2/min) by the Cooper (1967) method for the 10 feet of aquifer at the screen.

* The IWVGWP (1990-1992) was a cooperative endeavor by Indian Wells Valley Water District, China Lake Naval Weapons Center, North American Chemical Company, and the U.S. Bureau of Reclamation to install nested piezometers, such as the one shown, in holes drilled to 2000 +/- feet.

Indian Wells Valley Groundwater Project (IWVGWP)*
Diagrammatic Completion and Data Summary Sheet

**** Well BR-5 ****
3 - 2" Piezometers



Notes

T = Transmissivity. See note below on slug tests.

mg/L = Total filterable residue at 180 C in milligrams per liter.

DRILL SITE:
The well is about 200 feet west of Hwy. 395 at a point about 1/2 mile north of the intersection of Leliter Road and Hwy. 395.

DRILLING METHOD:
Direct rotary with bentonite mud. 14 3/4 inch roller cone bit from 56 to 1014 feet. 12 1/4 roller cone bit from 1014 to total depth.

HOLE COMPLETION:
Installed three 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each.

DEVELOPMENT:
Each piezometer was air-lifted 3-4 hours and discharged an estimated 5-10 gallons per minute. Water samples for lab analysis were collected at the end of development.

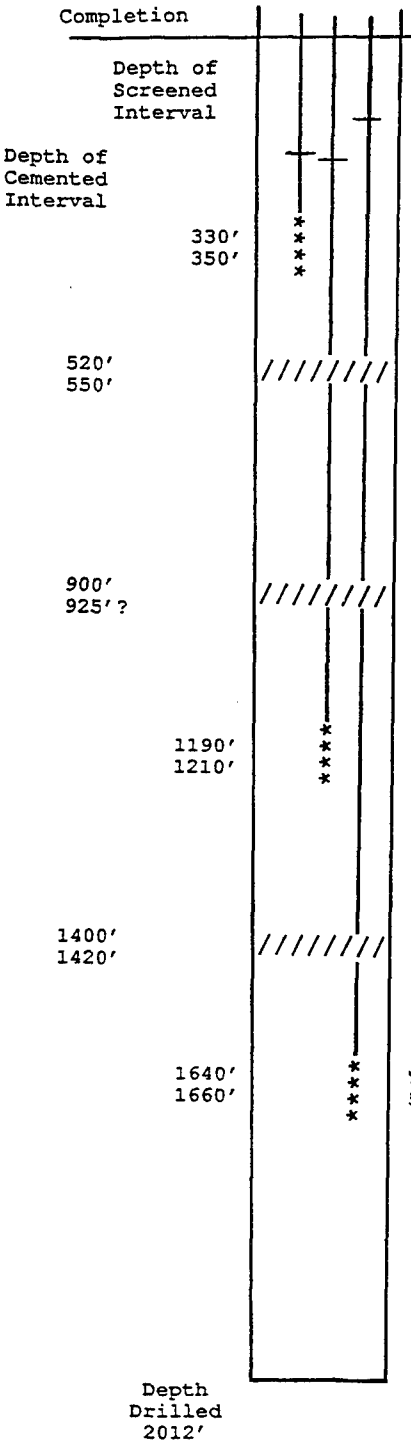
DEPTH TO WATER:
All depths reported below were measured on January 28, 1992 from the top of the protective casing.

SLUG TEST RESULTS:
Estimated transmissivity (T) (ft^2/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.

* The IWVGWP (1990-1992) was a cooperative endeavor by Indian Wells Valley Water District, China Lake Naval Weapons Center, North American Chemical Company, and the U.S. Bureau of Reclamation to install nested piezometers, such as the one shown, in holes drilled to 2000 +/- feet.

Indian Wells Valley Groundwater Project (IWVGWP)*
Diagrammatic Completion and Data Summary Sheet

**** Well BR-6 ****
3 - 2" Piezometers



Notes

T = Transmissivity. See note below on slug tests.

mg/L = Total filterable residue at 180 C in milligrams per liter.

DRILL SITE:
The well is just inside (east) the Naval Air Warfare Station boundary (which is parallel Brown Road) along dirt eastward extension of the east-west section of Brown Road.

DRILLING METHOD:
Direct rotary with bentonite mud. 14 3/4 inch roller cone bit from 56 to 1010 feet. 12 1/4 roller cone bit from 1010 to total depth.

HOLE COMPLETION:
Installed three 2" diameter steel pipes with a 20′ two inch diameter screen on the bottom of each.

DEVELOPMENT:
Each piezometer was air-lifted about 2 hours and discharged an estimated 5-10 gallons per minute. Water samples for lab analysis were collected at the end of development.

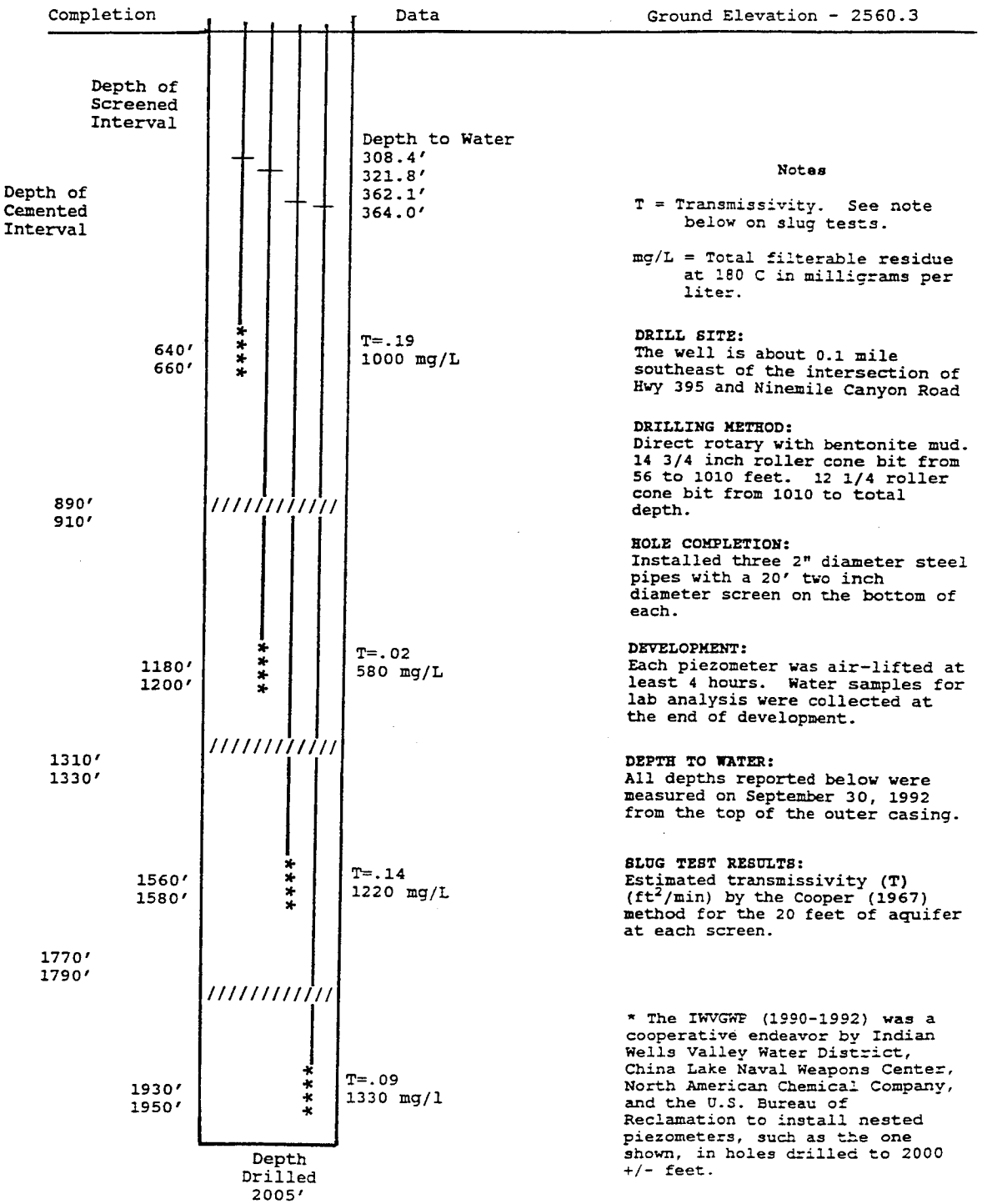
DEPTH TO WATER:
All depths reported below were measured on January 28, 1992 from the top of the protective casing.

SLUG TEST RESULTS:
Estimated transmissivity (T) (ft^2/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.

* The IWVGWP (1990-1992) was a cooperative endeavor by Indian Wells Valley Water District, China Lake Naval Weapons Center, North American Chemical Company, and the U.S. Bureau of Reclamation to install nested piezometers, such as the one shown, in holes drilled to 2000 +/- feet.

Indian Wells Valley Groundwater Project (IWVGWP)*
Diagrammatic Completion and Data Summary Sheet

**** Well BR-10 ****
4 - 2" Piezometers



Notes

T = Transmissivity. See note below on slug tests.

mg/L = Total filterable residue at 180 C in milligrams per liter.

DRILL SITE:
The well is about 0.1 mile southeast of the intersection of Hwy 395 and Ninemile Canyon Road

DRILLING METHOD:
Direct rotary with bentonite mud. 14 3/4 inch roller cone bit from 56 to 1010 feet. 12 1/4 roller cone bit from 1010 to total depth.

HOLE COMPLETION:
Installed three 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each.

DEVELOPMENT:
Each piezometer was air-lifted at least 4 hours. Water samples for lab analysis were collected at the end of development.

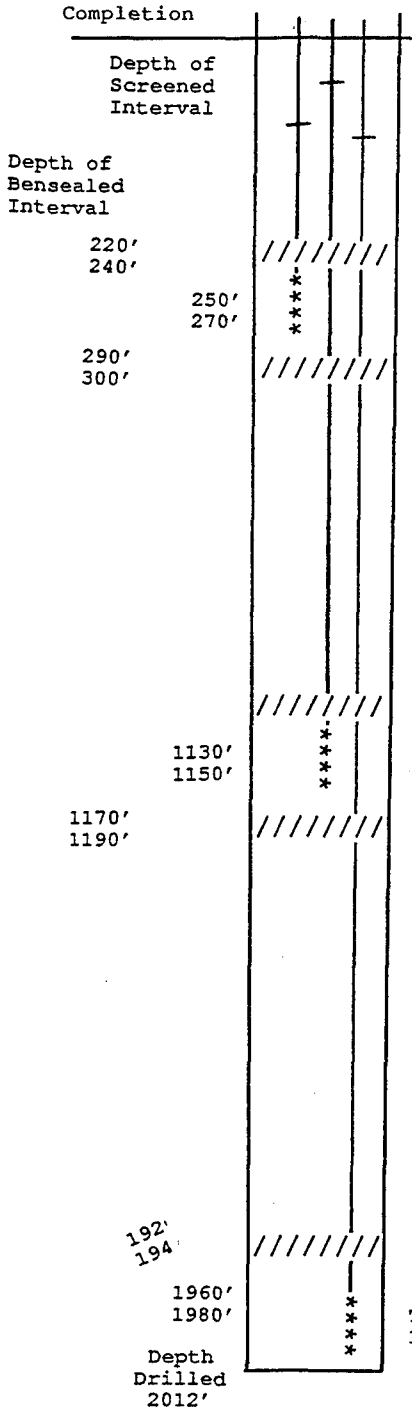
DEPTH TO WATER:
All depths reported below were measured on September 30, 1992 from the top of the outer casing.

SLUG TEST RESULTS:
Estimated transmissivity (T) (ft^2/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.

* The IWVGWP (1990-1992) was a cooperative endeavor by Indian Wells Valley Water District, China Lake Naval Weapons Center, North American Chemical Company, and the U.S. Bureau of Reclamation to install nested piezometers, such as the one shown, in holes drilled to 2000 +/- feet.

Indian Wells Valley Groundwater Project (IWVGWP)*
Diagrammatic Completion and Data Summary Sheet

**** Well NR-1 ****
[Water District Well]
3 - 2" Piezometers



Notes

T = Transmissivity. See note below on slug tests.

mg/L = Total filterable residue at 180 C in milligrams per liter.

DRILL SITE:
The well is located in the extreme northeast corner of the Indian Wells Valley Water District's Neal Ranch property.

DRILLING METHOD:
Direct rotary with bentonite mud. 12 1/4 inch roller cone bit from surface to total depth.

HOLE COMPLETION:
Installed three 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each.

DEVELOPMENT:
Each piezometer was air-lifted for about 12 hours and discharged an estimated 10 gallons per minute. Water samples for lab analysis were collected at the end of development.

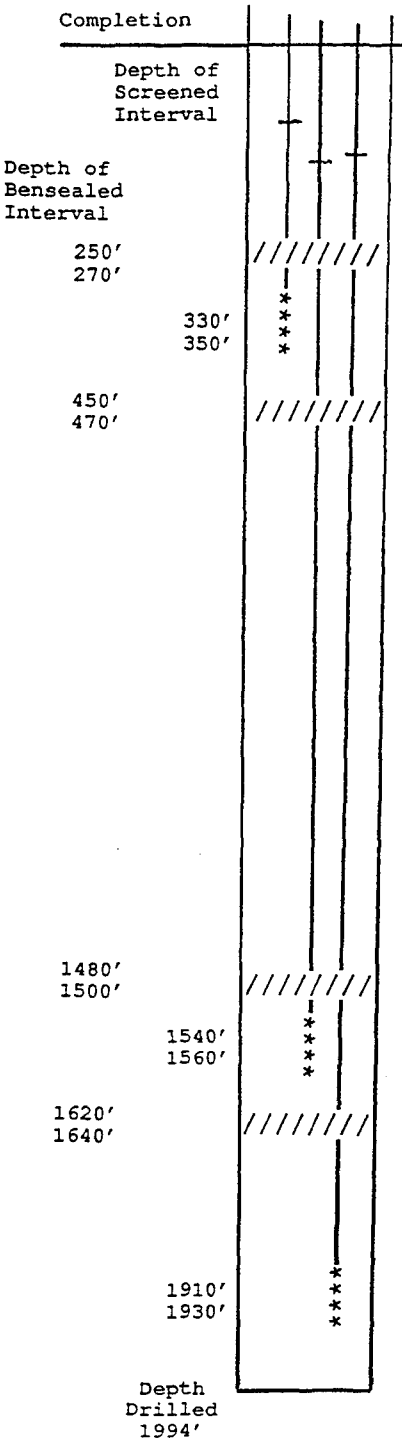
DEPTH TO WATER:
All depths reported below were measured on October 22, 1991 from the top of the outer casing.

SLUG TEST RESULTS:
Estimated transmissivity (ft^2/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.

* The IWVGWP (1990-1992) was a cooperative endeavor by Indian Wells Valley Water District, China Lake Naval Weapons Center, North American Chemical Company, and the U.S. Bureau of Reclamation to install nested piezometers, such as the one shown, in holes drilled to 2000 +/- feet.

Indian Wells Valley Groundwater Project (IWVGWP)*
Diagrammatic Completion and Data Summary Sheet

**** Well NR-2 ****
[Water District Well]
3 - 2" Piezometers



Notes

T = Transmissivity. See note below on slug tests.

mg/L = Total filterable residue at 180 C in milligrams per liter.

DRILL SITE:
The well is located in the southwest corner of the southwestern block of the Indian Wells Valley Water District's Neal Ranch property.

DRILLING METHOD:
Direct rotary with bentonite mud. 12 1/4 inch roller cone bit from surface to total depth.

HOLE COMPLETION:
Installed three 2" diameter steel pipes with a 20′ two inch diameter screen on the bottom of each.

DEVELOPMENT:
Each piezometer was air-lifted for about 12 hours and discharged an estimated 10 gallons per minute. Water samples for lab analysis were collected at the end of development.

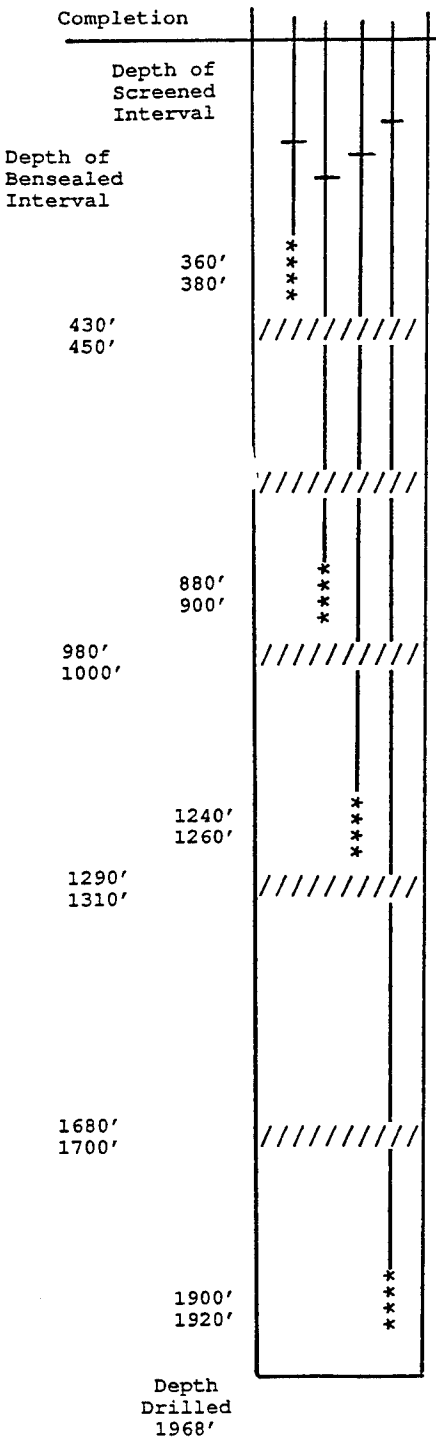
DEPTH TO WATER:
All depths reported below were measured on October 22, 1991 from the top of the outer casing.

SLUG TEST RESULTS:
Estimated transmissivity (ft^2/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.

* The IWVGWP (1990-1992) was a cooperative endeavor by Indian Wells Valley Water District, China Lake Naval Weapons Center, North American Chemical Company, and the U.S. Bureau of Reclamation to install nested piezometers, such as the one shown, in holes drilled to 2000 +/- feet.

Indian Wells Valley Groundwater Project (IWVGWP)*
Diagrammatic Completion and Data Summary Sheet

**** Well MW-32 ****
[Water District Well]
4 - 2" Piezometers



Notes

T = Transmissivity. See note below on slug tests.

mg/L = Total filterable residue at 180 C in milligrams per liter.

DRILL SITE:
The well is located just north of the east west dirt road just to the east of the center of the Indian Wells Valley Water District's Victor Street property.

DRILLING METHOD:
Direct rotary with bentonite mud. 12 1/4 inch roller cone bit from surface to total depth.

HOLE COMPLETION:
Installed four 2" diameter steel pipes with a 20′ two inch diameter screen on the bottom of each.

DEVELOPMENT:
Each piezometer was air-lifted for about 12 hours and discharged an estimated 5-15 gallons per minute. Water samples for lab analysis were collected at the end of development.

DEPTH TO WATER:
All depths reported below were measured on December 12, 1991 from the top of the outer casing.

SLUG TEST RESULTS:
Estimated transmissivity (ft^2/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.

* The IWVGWP (1990-1992) was a cooperative endeavor by Indian Wells Valley Water District, China Lake Naval Weapons Center, North American Chemical Company, and the U.S. Bureau of Reclamation to install nested piezometers, such as the one shown, in holes drilled to 2000 +/- feet.

Appendix B
DRILL HOLE COMPLETION AND GEOLOGIC LOGS

USBR Drill Hole Completion and Data Log
Monitoring Well BR-1

FEATURE Drill Hole Completed with Nested Piezometers — DRILLED DEPTH 1910 Ft.
PROJECT Indian Wells Valley Groundwater Project — COMPLETED DEPTH 1790 Ft.
LOCATION T.27 S., R.38 E., Sec. 23b — STATE CA — BEGUN 2-15-91
TYPE OF WELL Observation — FINISHED 3-5-91
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION 2848.3
COORDINATES — TOP OF CASING ELEV. 2852.2
HOLE LOGGED BY Cuttings Description by Dipti Barari, N. Amer. Chem. Co., Trona CA — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS Yes, See Notes
TDS See Notes
OTHER LOGS Drilling Time — REVIEWED BY Dennis Watt, USBR

NOTES

DRILL SITE:
The well is located about 200 feet west of the Red Rock-Inyokern Road about 5.2 miles south of Hwy. 178.

DRILLED BY:
Southern California Drilling Company of Lancaster CA.

DRILLING RIG:
Custom built, small oil-field rotary rig.

DRILLING METHOD:
Direct rotary with bentonite mud. 12 1/4 inch roller cone bit from surface to total depth.

HOLE COMPLETION:
Installed four 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each. Screens are at the following depth intervals: 615'-635', 1040'-1060', 1500'-1520', 1750'-1770'. Twenty feet of 2" pipe below each screen. Benseal (bentonite) plugs set at the following depth intervals: 800'-820', 1400'-1420', 1690'-1710'.

DEVELOPMENT:
Each piezometer was air-lifted for about 12 hours and discharged an estimated 5-10 gallons per minute.

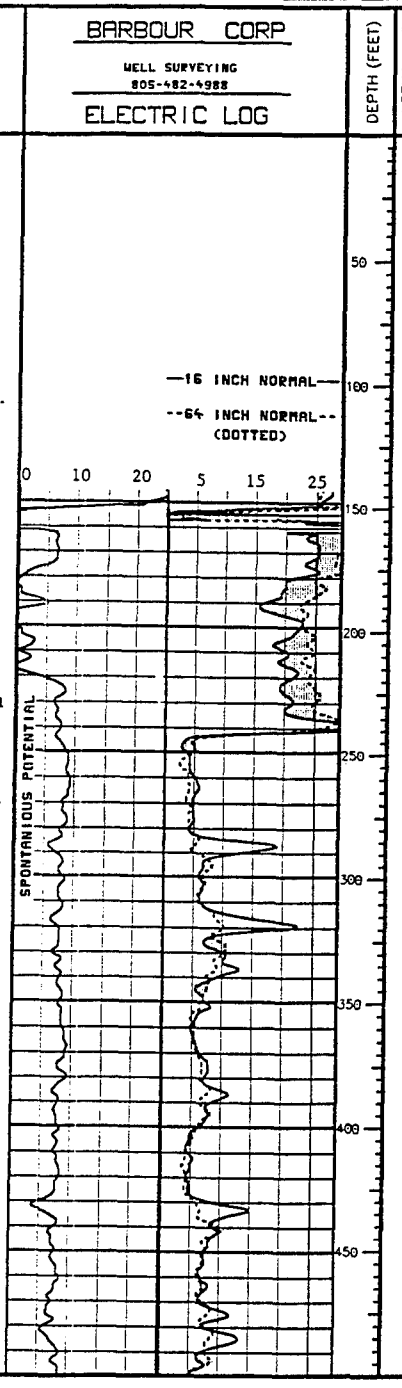
DEPTH TO WATER:
All depths reported below were measured on October 22, 1991 from the top of the protective casing.

Screen Interval	Depth (Ft)
615'-635'	184.9
1040'-1060'	181.3
1500'-1520'	186.8
1750'-1770'	196.1

All depth to water measurements are available in the Geohydrologic Appendix for this project.

SLUG TEST RESULTS:
Estimated transmissivity (ft^2/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.

Piezometer	T
Shallow	.21
Shallow Medium	.24
Deep Medium	.01
Deep	.004



LITHOLOGIC LOG

CONDENSED CUTTINGS DESCRIPTION

The interpretation below is reduced from a description of samples collected every 10 feet from the drilling mud return.

GENERAL

The collected samples and drilling character indicate a non-cemented alluvial fill from land surface to total depth.

Depth intervals are feet below land surface.

0-250 SAND
Mostly medium to coarse sand with scattered fine gravel layers.

250-280 CLAY
Light brown to light gray clay.

280-350 SAND
Fine to coarse sand with clay lenses.

350-380 CLAY
Brown-white to brown clay.

380-400 SAND
Medium to coarse sand.

400-430 CLAY
Light brown to yellow brown clay with sand lenses.

430-450 SAND
Medium to coarse sand.

450-470 CLAY
Brown clay with sand lenses.

470-510 SAND
Mostly medium to coarse sand.

PAGE CF | DRILL HOLE BR-1 [Page 1]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-1

FEATURE: Drill Hole Completed with Nested Piezometers
PROJECT: Indian Wells Valley Groundwater Project
LOCATION: T.27 S., R.38 E., Sec. 23b
TYPE OF WELL: Observation
PURPOSE: Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity
COORDINATES:
HOLE LOGGED BY: Cuttings Description by Dipti Barari, N. Amer. Chem. Co., Trona CA
GEOPHYSICAL LOGS: Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature
OTHER LOGS: Drilling Time

DRILLED DEPTH: 1910 Ft.
COMPLETED DEPTH: 1790 Ft.
STATE: CA
BEGUN: 2-15-91
FINISHED: 3-5-91
GROUND ELEVATION: 2848.3
TOP OF CASING ELEV.: 2852.2
DEPTH TO WATER (DATE): See Notes
LAB ANALYSIS: Yes, See Notes
TDS: See Notes
REVIEWED BY: Dennis Watt, USBR

NOTES

WATER QUALITY:
Water analysis by:

Clinical Labs
1595 North "D" Street
San Bernardino CA 92405

Depth: 615-635'

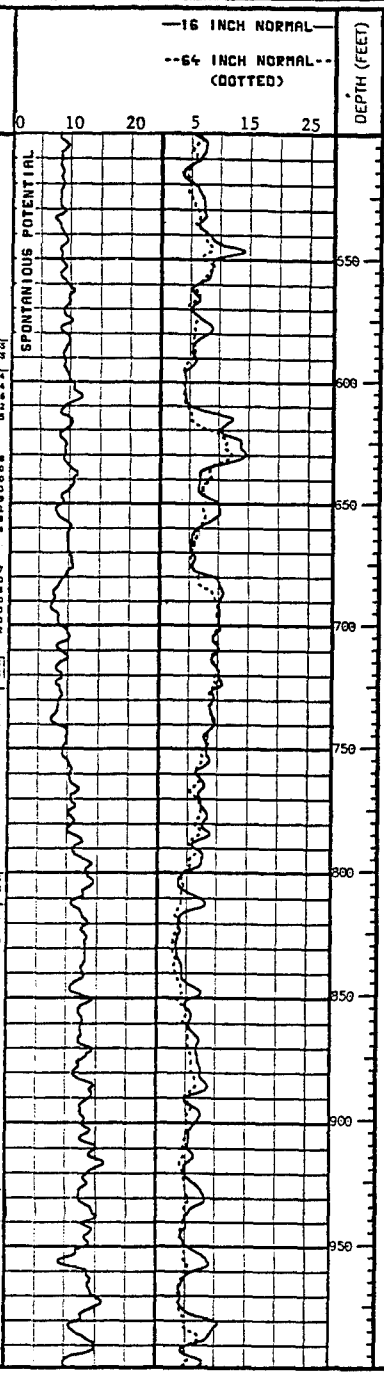
REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ANALYSES RESULTS
mg/L	Total Hardness (as CaCO3)	22.4
mg/L	Calcium (Ca)	6.4
mg/L	Magnesium (Mg)	1.6
mg/L	Sodium (NA)	79.2
mg/L	Potassium (K)	3.5
Total Cations	Meq/L Value:	4.0
mg/L	Total Alkalinity (AS CaCO3)	124.8
mg/L	Hydroxide (OH)	< 1.0
mg/L	Carbonate (CO3)	< 1.0
mg/L	Bicarbonate (HCO3)	152.1
mg/L*	Sulfate (SO4)	27.9
mg/L*	Chloride (Cl)	17.1
mg/L	Nitrate (as NO3)	9.8
mg/L	Fluoride (F) Temp. Depend.	1.4
Total Anions	Meq/L Value:	3.8
Std. Units	PH (Laboratory)	8.7
umho/cm**	Specific Conductance (E.C.)	380.0
mg/L**	Total Filterable Residue at 180C	212.8
Units	Apparent Color (Unfiltered)	> 70
TON	Odor Threshold at 60 C	2.0
NTU	Lab Turbidity	170.0
mg/L	MBAS	< 0.02

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ANALYSES RESULTS
ug/L	Arsenic (As)	< 10
ug/L	Barium (Ba)	< 100
ug/L	Cadmium (Cd)	< 1
ug/L	Chromium (Total Cr)	< 10
ug/L	Copper (Cu)	< 50
ug/L	Iron (Fe)	< 100
ug/L	Lead (Pb)	< 5
ug/L	Manganese (Mn)	< 30
ug/L	Mercury (Hg)	< 1
ug/L	Selenium (Se)	< 5
ug/L	Silver (Ag)	< 10
ug/L	Zinc (Zn)	< 50
ug/L	Aluminum	< 100

Depth: 1040-1060'

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ANALYSES RESULTS
mg/L	Total Hardness (as CaCO3)	12.8
mg/L	Calcium (Ca)	3.2
mg/L	Magnesium (Mg)	1.2
mg/L	Sodium (NA)	93.0
mg/L	Potassium (K)	1.5
Total Cations	Meq/L Value:	4.4
mg/L	Total Alkalinity (AS CaCO3)	183.2
mg/L	Hydroxide (OH)	< 1.0
mg/L	Carbonate (CO3)	< 1.0
mg/L	Bicarbonate (HCO3)	223.5
mg/L*	Sulfate (SO4)	16.0
mg/L*	Chloride (Cl)	9.4
mg/L	Nitrate (as NO3)	8.7
mg/L	Fluoride (F) Temp. Depend.	0.7
Total Anions	Meq/L Value:	4.4
Std. Units	PH (Laboratory)	9.1
umho/cm**	Specific Conductance (E.C.)	420.0
mg/L**	Total Filterable Residue at 180C	243.6
Units	Apparent Color (Unfiltered)	20.0
TON	Odor Threshold at 60 C	2.0
NTU	Lab Turbidity	61.0
mg/L	MBAS	< 0.02

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ANALYSES RESULTS
ug/L	Arsenic (As)	< 10
ug/L	Barium (Ba)	< 100
ug/L	Cadmium (Cd)	< 1
ug/L	Chromium (Total Cr)	< 10
ug/L	Copper (Cu)	< 50
ug/L	Iron (Fe)	< 100
ug/L	Lead (Pb)	< 5
ug/L	Manganese (Mn)	< 30
ug/L	Mercury (Hg)	< 1
ug/L	Selenium (Se)	< 5
ug/L	Silver (Ag)	< 10
ug/L	Zinc (Zn)	< 50
ug/L	Aluminum	< 100



CONDENSED CUTTINGS DESCRIPTION

470-510 SAND
Mostly medium to coarse sand.

510-520 CLAY
Brown silty clay.

520-580 SAND
Fine to coarse sand.

560-580 Thin clays.

580-610 CLAY
Brown clay.

600-610 Sand lenses.

610-760 SAND
Medium to coarse sand.

660-730 Scattered clay lenses.

760-800 SAND AND CLAY
Fine to coarse sand with interbedded with clay.

800-880 CLAY
Mostly brown clay. Interbedded sand lenses.

880-1370 SAND WITH CLAY LENSES
Fine to coarse sand.

PAGE OF | DRILL HOLE BR-1 [Page 2]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-1

FEATURE: Drill Hole Completed with Nested Piezometers — DRILLED DEPTH: 1910 Ft.
PROJECT: Indian Wells Valley Groundwater Project — COMPLETED DEPTH: 1790 Ft.
LOCATION: T.27 S., R.38 E., Sec. 23b — STATE: CA — BEGUN: 2-15-91
TYPE OF WELL: Observation — FINISHED: 3-5-91
PURPOSE: Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION: 2848.3
COORDINATES: — TOP OF CASING ELEV.: 2852.2
HOLE LOGGED BY: Cuttings Description by Dipti Barari, N. Amer. Chem. Co., Trona CA — DEPTH TO WATER (DATE): See Notes
GEOPHYSICAL LOGS: Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS: Yes, See Notes — TDS: See Notes
OTHER LOGS: Drilling Time — REVIEWED BY: Dennis Watt, USBR

NOTES

Depth: 1500-1520'

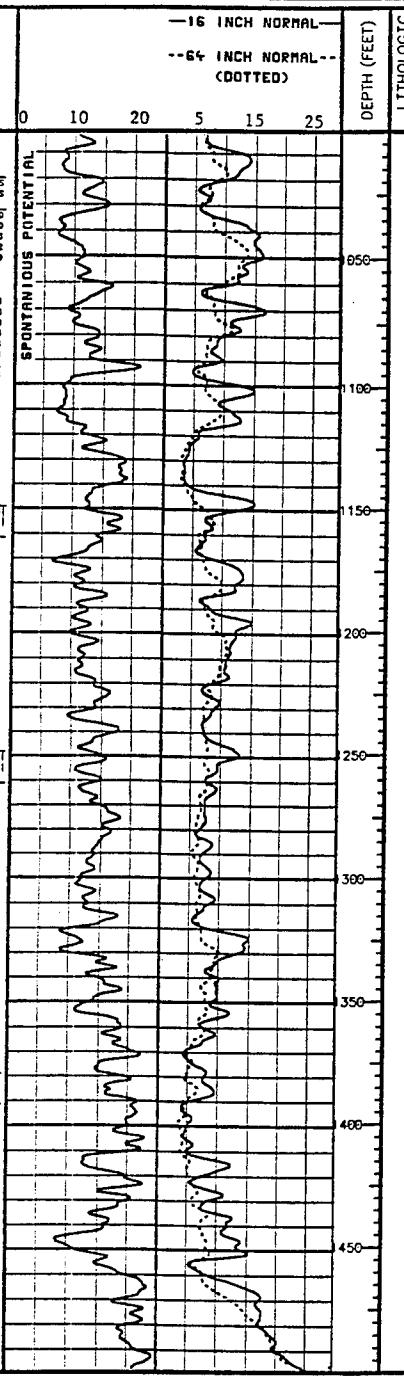
REPORTING UNITS	CONSTITUENT — ALL CONSTITUENTS REPORTED UG/L	ANALYSES RESULTS
mg/L	Total Hardness (as CaCO3)	72.0
mg/L	Calcium (Ca)	28.0
mg/L	Magnesium (Mg)	5.3
mg/L	Sodium (NA)	130.2
mg/L	Potassium (K)	7.9
Total Cations	Meq/L Value:	6.4
mg/L	Total Alkalinity (AS CaCO3)	248.8
mg/L	Hydroxide (OH)	< 1.0
mg/L	Carbonate (CO3)	< 1.0
mg/L	Bicarbonate (HCO3)	303.5
mg/L*	Sulfate (SO4)	25.3
mg/L*	Chloride (Cl)	14.3
mg/L	Nitrate (as NO3)	9.1
mg/L	Fluoride (F) Temp. Depend.	2.3
Total Anions	Meq/L Value:	6.2
Std. Units	PH (Laboratory)	8.8
umho/cm**	Specific Conductance (E.C.)	610.0
mg/L***	Total Filterable Residue at 180C	353.8
Units	Apparent Color (Unfiltered)	> 70.0
TON	Odor Threshold at 60 C	2.0
NTU	Lab Turbidity	> 200.0
mg/L	MBAS	< 0.02

REPORTING UNITS	CONSTITUENT — ALL CONSTITUENTS REPORTED UG/L	ANALYSES RESULTS
ug/L	Arsenic (As)	< 10
ug/L	Barium (Ba)	< 100
ug/L	Cadmium (Cd)	< 1
ug/L	Chromium (Total Cr)	< 10
ug/L	Copper (Cu)	< 50
ug/L	Iron (Fe)	< 100
ug/L	Lead (Pb)	< 5
ug/L	Manganese (Mn)	< 30
ug/L	Mercury (Hg)	< 1
ug/L	Selenium (Se)	< 5
ug/L	Silver (Ag)	< 10
ug/L	Zinc (Zn)	150
ug/L	Aluminum	< 100

Depth: 1750-1770'

REPORTING UNITS	CONSTITUENT — ALL CONSTITUENTS REPORTED UG/L	ANALYSES RESULTS
mg/L	Total Hardness (as CaCO3)	32.0
mg/L	Calcium (Ca)	9.6
mg/L	Magnesium (Mg)	1.9
mg/L	Sodium (NA)	107.9
mg/L	Potassium (K)	4.8
Total Cations	Meq/L Value:	5.4
mg/L	Total Alkalinity (AS CaCO3)	218.0
mg/L	Hydroxide (OH)	< 1.0
mg/L	Carbonate (CO3)	< 1.0
mg/L	Bicarbonate (HCO3)	266.0
mg/L*	Sulfate (SO4)	16.6
mg/L*	Chloride (Cl)	10.2
mg/L	Nitrate (as NO3)	7.1
mg/L	Fluoride (F) Temp. Depend.	3.3
Total Anions	Meq/L Value:	5.3
Std. Units	PH (Laboratory)	8.7
umho/cm**	Specific Conductance (E.C.)	500.0
mg/L***	Total Filterable Residue at 180C	285.0
Units	Apparent Color (Unfiltered)	> 70.0
TON	Odor Threshold at 60 C	2.0
NTU	Lab Turbidity	> 200.0
mg/L	MBAS	< 0.02

REPORTING UNITS	CONSTITUENT — ALL CONSTITUENTS REPORTED UG/L	ANALYSES RESULTS
ug/L	Arsenic (As)	< 10
ug/L	Barium (Ba)	< 100
ug/L	Cadmium (Cd)	< 1
ug/L	Chromium (Total Cr)	< 10
ug/L	Copper (Cu)	< 50
ug/L	Iron (Fe)	< 100
ug/L	Lead (Pb)	< 5
ug/L	Manganese (Mn)	< 30
ug/L	Mercury (Hg)	< 1
ug/L	Selenium (Se)	< 5
ug/L	Silver (Ag)	< 10
ug/L	Zinc (Zn)	50
ug/L	Aluminum	< 100



CONDENSED CUTTINGS DESCRIPTION

880-1370 SAND WITH CLAY LENSES
Fine to coarse sand.

1370-1420 CLAY
Mostly brown to gray clay with thin sand lenses.

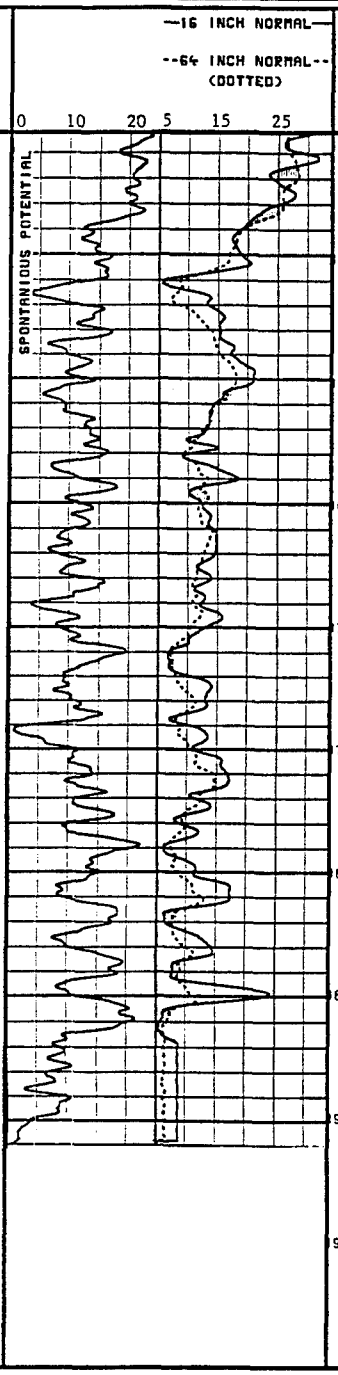
1420-1890 SAND
Mostly fine to coarse sand with interbedded clays.

PAGE OF | DRILL HOLE BR-1 [Page 3]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-1

FEATURE Drill Hole Completed with Nested Piezometers — DRILLED DEPTH 1910 Ft.
PROJECT Indian Wells Valley Groundwater Project — COMPLETED DEPTH 1790 Ft.
LOCATION T.27 S., R.38 E., Sec. 23b — STATE CA — BEGUN 2-15-91
TYPE OF WELL Observation — FINISHED 3-5-91
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION 2848.3
COORDINATES — TOP OF CASING ELEV. 2852.2
HOLE LOGGED BY Cuttings Description by Dipti Barari, N. Amer. Chem. Co., Trona CA — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS Yes, See Notes
TDS See Notes
OTHER LOGS Drilling Time — REVIEWED BY Dennis Watt, USBR

NOTES



CONDENSED CUTTINGS DESCRIPTION

1420-1890 SAND
Mostly fine to coarse sand with interbedded clays.

1610-1760 Driller reports volcanic conglomerate.

1760-1830 Volcanic sands reported by driller.

1830 Drilling time doubling with each added drill rod.

1890-1910 CLAY
Cemented dark brown clay with bluish tint.

PAGE OF | DRILL HOLE BR-1 [Page 4]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-2

FEATURE: Drill Hole Completed with Nested Piezometers
PROJECT: Indian Wells Valley Groundwater Project
LOCATION: T.27 S., R 38 E., Sec. 2c
STATE: CA
TYPE OF WELL: Observation
PURPOSE: Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity
COORDINATES:
HOLE LOGGED BY: Cuttings Description by Ken Turner, Kern Co. Water Agency
GEOPHYSICAL LOGS: Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature
OTHER LOGS: Drilling Time

DRILLED DEPTH: 2020 Ft.
COMPLETED DEPTH: 1984 Ft.
BEGUN: 10-01-90
FINISHED: 10-24-90
GROUND ELEVATION: 2655.9
TOP OF CASING ELEV.: 2658.8
DEPTH TO WATER (DATE): See Notes
LAB ANALYSIS: Yes, See Notes
TDS: See Notes
REVIEWED BY: Dennis Watt, USBR

NOTES

DRILL SITE:
The well is located about 1 1/4 miles south of Hwy. 178 at the end of Sierra Vista Road.

DRILLED BY:
Southern California Drilling Company of Lancaster CA.

DRILLING RIG:
Custom built small oil-field rotary rig.

DRILLING METHOD:
Direct rotary with bentonite mud. 12 1/4 inch roller cone bit from surface to total depth.

HOLE COMPLETION:
Installed three 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each. Screens are at the following depth intervals: 570'-590', 1460'-1480', 1940'-1960'. Twenty feet of 2" pipe below each screen. Neat cement plugs set at the following depth intervals: 680'-700', 1140'-1160', 1550'-1570', 1740'-1760'.

DEVELOPMENT:
Each piezometer was air-lifted for about 12 hours and discharged an estimated 10 gallons per minute.

DEPTH TO WATER:
All depths reported below were measured on October 22, 1991 from the top of the outer casing.

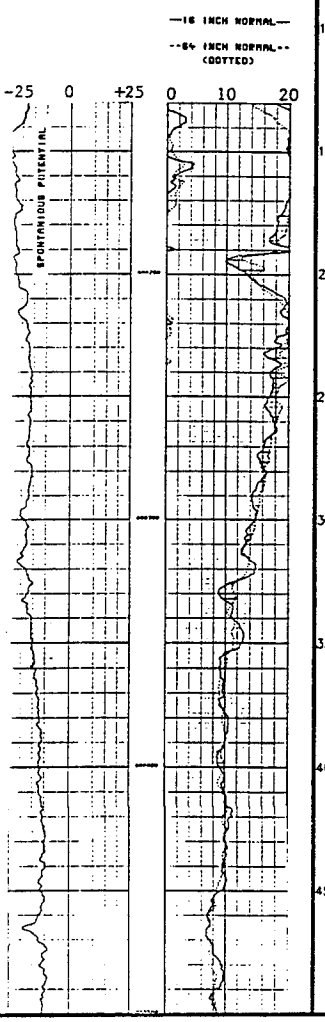
Screen Interval	Depth (Ft)
620'-640'	276.1
1460'-1480'	282.0
1940'-1960'	272.7

All depth to water measurements are available in an attachment to the Geohydrologic Appendix for this project.

SLUG TEST RESULTS:
Estimated transmissivity (ft^2/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.

Piezometer	T
Shallow	.01?
Medium	.19
Deep	.016

BARBOUR CORP
WELL SURVEYING
805-482-4988
ELECTRIC LOG



DEPTH (FEET): 50, 100, 150, 200, 250, 300, 350, 400, 450

LITHOLOGIC LOG

CONDENSED CUTTINGS DESCRIPTION

The interpretation below is reduced from a description of samples collected every 10 feet from the drilling mud return.

GENERAL

The collected samples and drilling character indicate a non-cemented alluvial fill from land surface to total depth.

Depth intervals are feet below land surface.

0-80 SAND
Fine to coarse, subangular to subrounded, brown to light brown sand.

0-10 Silty.

30-40 Coarse to very coarse.

70-80 Some small pebbles.

80-250 SAND
Medium to very coarse, mostly subangular with some subrounded, light brownish gray to light gray sand.

150-160 Some pebbles.

170-180 Some pebbles.

190-220 Some pebbles.

250-380 SAND
Fine to coarse, subangular to subround, light gray sand.

270-290 Medium to coarse.

310-330 Medium to very coarse.

330-340 Very fine to medium.

350-370 Medium to very coarse.

380-490 SILTY SAND
Fine to coarse, subangular to subrounded, light gray, silty sand.

400-490 Well rounded.

PAGE OF | DRILL HOLE BR-2 [Page 1]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-2

FEATURE Drill Hole Completed with Nested Piezometers — DRILLED DEPTH 2020 Ft.
PROJECT Indian Wells Valley Groundwater Project — COMPLETED DEPTH 1984 Ft.
LOCATION T.27 S., R 38 E., Sec. 2c — STATE CA — BEGUN 10-01-90
TYPE OF WELL Observation — FINISHED 10-24-90
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION 2655.9
COORDINATES — TOP OF CASING ELEV. 2658.8
HOLE LOGGED BY Cuttings Description by Ken Turner, Kern Co. Water Agency — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS Yes, See Notes
TDS See Notes
OTHER LOGS Drilling Time — REVIEWED BY Dennis Watt, USBR

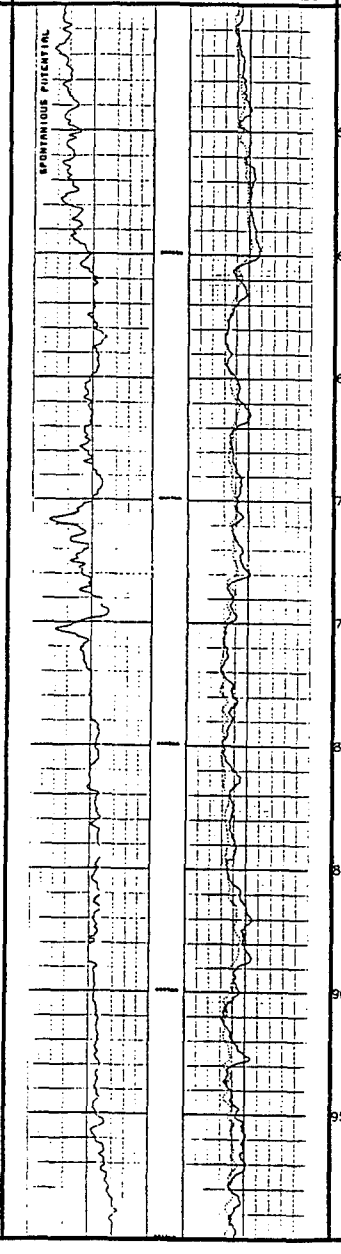
NOTES

WATER QUALITY:
Water analysis by:

Clinical Labs
1595 North "D" Street
San Bernardino CA 92405

Depth: 620'-640'

Water quality sample not available. See following pages for water quality analyses from medium and deep piezometers.



CONDENSED CUTTINGS DESCRIPTION

490-550 SAND (CLAY RICH)
Fine to coarse, subangular to well rounded, light gray sand.

500-510 Very coarse sand.

550-580 SILTY SAND
Medium to coarse, subround to well rounded, light gray silty sand.

580-630 SAND
Medium to very coarse, subround, pale brown sand.

630-760 SANDY CLAY
Fine to medium, pale brown, sandy clay.

690-710 Silty.

760-1020 SILTY SAND
Clay rich, pale brown, silty sand.

800-810 Sandy clay.

850-870 Fine to coarse silty sand.

900-910 Sandy clay.

940-950 Sandy clay.

950-990 Fine to coarse, silty sand.

PAGE OF | DRILL HOLE BR-2 [Page 2]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-2

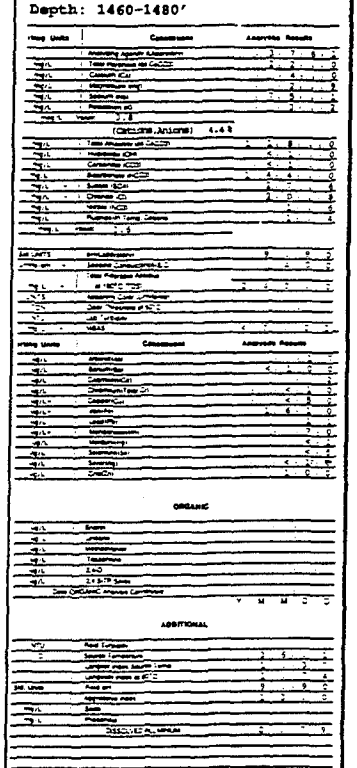
FEATURE Drill Hole Completed with Nested Piezometers — DRILLED DEPTH 2020 Ft.
PROJECT Indian Wells Valley Groundwater Project — COMPLETED DEPTH 1984 Ft.
LOCATION T.27 S., R 38 E., Sec. 2c — STATE CA — BEGUN 10-01-90
TYPE OF WELL Observation — FINISHED 10-24-90
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION 2655.9
COORDINATES — TOP OF CASING ELEV. 2658.8
HOLE LOGGED BY Cuttings Description by Ken Turner, Kern Co. Water Agency — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS Yes, See Notes
TDS See Notes
OTHER LOGS Drilling Time — REVIEWED BY Dennis Watt, USBR

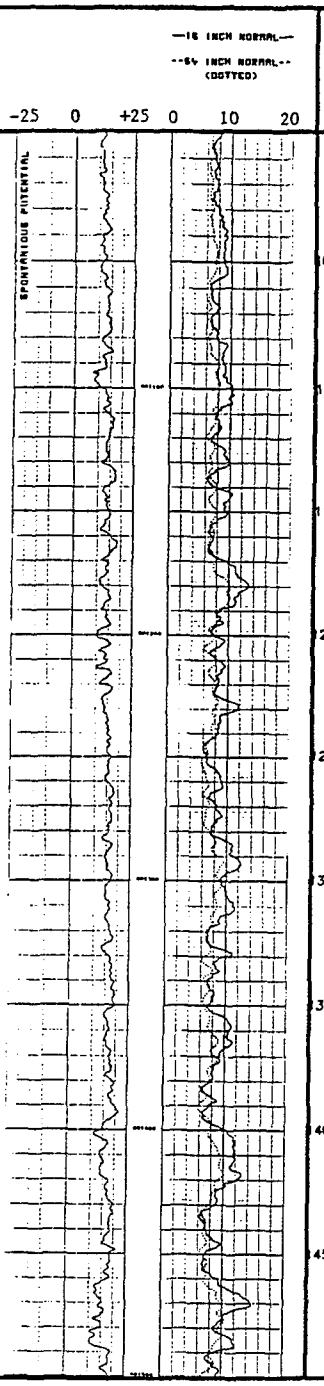
NOTES

WATER QUALITY:
Water analysis by:

Clinical Labs
1595 North "D" Street
San Bernardino CA 92405

Depth: 1460-1480'





DEPTH (FEET)
1050
1100
1150
200
250
300
350
400
450

LITHOLOGIC LOG

CONDENSED CUTTINGS DESCRIPTION

1020-1140 SILTY SAND
Fine to coarse, pale brown, silty sand.

1030-1040 Medium to very coarse, subrounded to well rounded sand.

1080-1100 Clay rich.

1100-1110 Sandy clay.

1140-1220 SILTY SAND
Fine to very coarse, pale brown, silty sand.

1140-1170 Sandy clay.

1190-1200 Sandy clay.

1220-1240 SANDY CLAY
Fine to medium, pale brown, sandy clay.

1240-1950 SILTY SAND
Fine to very coarse, pale brown, silty sand.

1260-1270 Clay rich.

1280-1320 Fine to very coarse, subangular to subrounded sand.

1370-1400 Clay rich.

1410-1430 Clay rich.

1440-1540 Clay rich.

PAGE OF | DRILL HOLE BR-2 [Page 3]

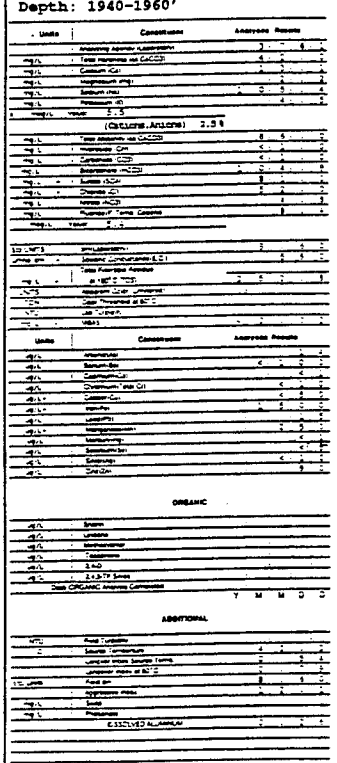
USBR Drill Hole Completion and Data Log
Monitoring Well BR-2

FEATURE: Drill Hole Completed with Nested Piezometers
PROJECT: Indian Wells Valley Groundwater Project
LOCATION: T.27 S., R 38 E., Sec. 2c
TYPE OF WELL: Observation
PURPOSE: Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity
COORDINATES:
HOLE LOGGED BY: Cuttings Description by Ken Turner, Kern Co. Water Agency
GEOPHYSICAL LOGS: Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature
OTHER LOGS: Drilling Time

STATE: CA
DRILLED DEPTH: 2020 Ft.
COMPLETED DEPTH: 1984 Ft.
BEGUN: 10-01-90
FINISHED: 10-24-90
GROUND ELEVATION: 2655.9
TOP OF CASING ELEV.: 2658.8
DEPTH TO WATER (DATE): See Notes
LAB ANALYSIS: Yes, See Notes
TDS: See Notes
REVIEWED BY: Dennis Watt, USBR

NOTES

Depth: 1940-1960'



—16 INCH NORMAL—
--64 INCH NORMAL-- (DOTTED)
SPONTANIOUS POTENTIAL
-25 0 +25 0 10 20
DEPTH (FEET)
LITHOLOGIC LOG

CONDENSED CUTTINGS DESCRIPTION

1240-1950 SILTY SAND
Fine to very coarse, pale brown, silty sand.

1440-1540 Clay rich.
1570-1640 Fine to coarse.
1670-1710 Fine to coarse.
1730-1750 Clay rich.
1780-1810 Fine to coarse.
1850-1880 Medium to coarse.
1880-1910 Fine to coarse.
1910-1950 Sandy clay.

1970-2020 SAND
Fine to coarse, pale brown sand.

PAGE OF | DRILL HOLE BR-2 [Page 4]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-3

FEATURE Drill Hole Completed with Nested Piezometers — DRILLED DEPTH 2024 Ft.
PROJECT Indian Wells Valley Groundwater Project — COMPLETED DEPTH 1990 Ft.
LOCATION T.27 S., R.39 E., Sec. 11d — STATE CA — BEGUN 3-06-91
TYPE OF WELL Observation — FINISHED 3-19-91
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION 2508.6
COORDINATES — TOP OF CASING ELEV. 2511.9
HOLE LOGGED BY Cuttings Description by Dipti Barari, N. Amer. Chem. Co., Trona CA — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS Yes, See Notes
TDS See Notes
OTHER LOGS Drilling Time — REVIEWED BY Dennis Watt, USBR

NOTES

DRILL SITE:
The well is located on the south side of Bowman Road about 1500 east of Hwy. 395.

DRILLED BY:
Southern California Drilling Company of Lancaster CA.

DRILLING RIG:
Custom built, small oil-field rotary rig.

DRILLING METHOD:
Direct rotary with bentonite mud. 12 1/4 inch roller cone bit from surface to total depth.

HOLE COMPLETION:
Installed three 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each. Screens are at the following depth intervals: 650'-670', 1320'-1340', 1850'-1870'. Twenty feet of 2" pipe below each screen. Benseal (bentonite) plugs set at the following depth intervals: 440'-460', 960'-980', 1400'-1420', 1615'-1625'.

DEVELOPMENT:
Each piezometer was air-lifted for about 12-20 hours and discharged an estimated 5-10 gallons per minute. Water samples for lab analysis were collected at the end of development.

DEPTH TO WATER:
All depths reported below were measured on December 12, 1991 from the top of the outer casing. Medium was measured with temperature logger.

Screen Interval	Depth (Ft)
650'-670'	327.6'
1320'-1340'	310'
1850'-1870'	308.6'

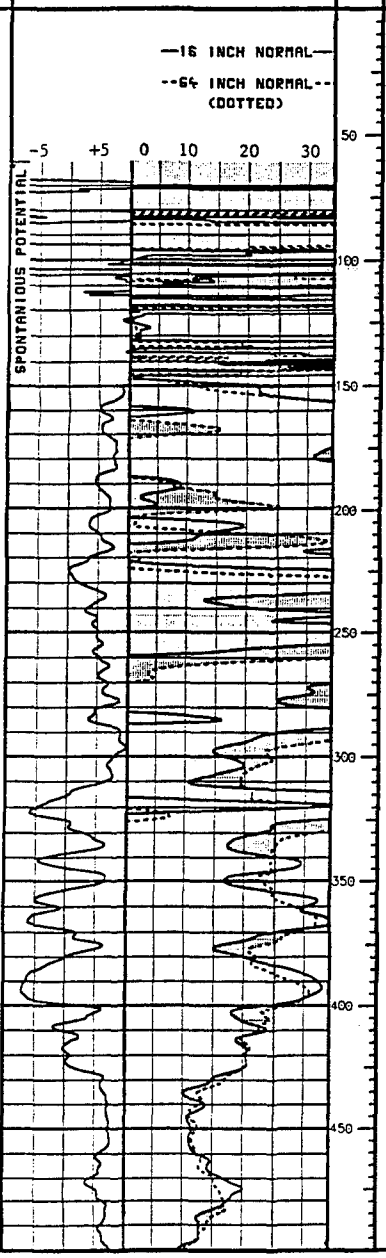
All depth to water measurements are available in the Geohydrologic Appendix for this project.

SLUG TEST RESULTS:
Estimated transmissivity (ft^2/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.

Piezometer	T
Shallow	.06
Medium	.00005*
Deep	.006

*Note - This is believed to be too low. Poor development?

BARBOUR CORP
WELL SURVEYING
805-482-4988
ELECTRIC LOG



DEPTH (FEET)

LITHOLOGIC LOG

CONDENSED CUTTINGS DESCRIPTION

The interpretation below is reduced from a description of samples collected every 10 feet from the drilling mud return.

GENERAL

The collected samples and drilling character indicate a non-cemented alluvial fill from land surface to total depth.

Depth intervals are feet below land surface.

0-1380 **SAND**
Fine to coarse sand with scattered gravel lenses down to 600 feet.

180-200 Clay lenses.

240-480 Thin clay lenses.

PAGE OF | DRILL HOLE BR-3 [Page 1]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-3

FEATURE Drill Hole Completed with Nested Piezometers — DRILLED DEPTH 2024 Ft.
PROJECT Indian Wells Valley Groundwater Project — COMPLETED DEPTH 1990 Ft.
LOCATION T.27 S., R.39 E., Sec. 11d — STATE CA — BEGUN 3-06-91
TYPE OF WELL Observation — FINISHED 3-19-91
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION 2508.6
COORDINATES — TOP OF CASING ELEV. 2511.9
HOLE LOGGED BY Cuttings Description by Dipti Barari, N. Amer. Chem. Co., Trona CA — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS Yes, See Notes
TDS See Notes
OTHER LOGS Drilling Time — REVIEWED BY Dennis Watt, USBR

NOTES

WATER QUALITY:
Water analysis by:

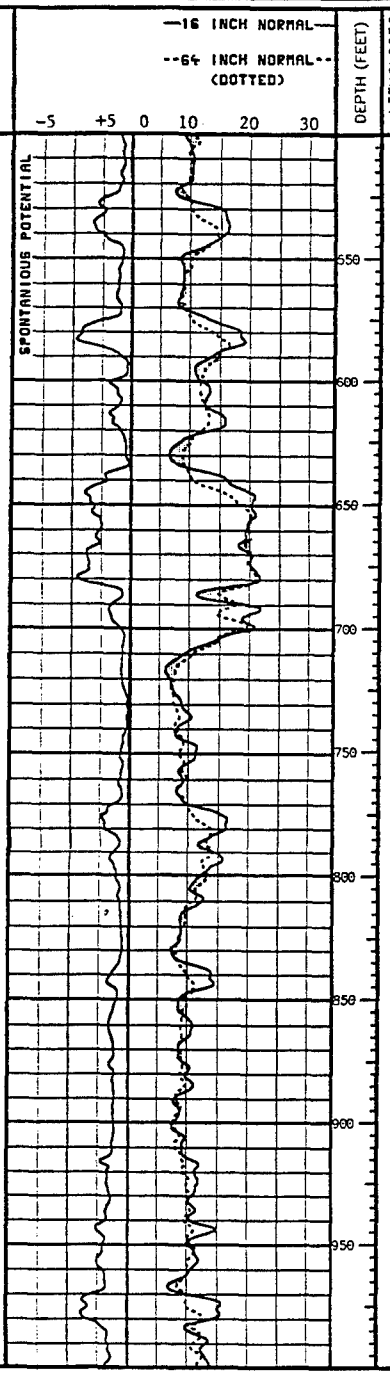
Clinical Labs
1595 North "D" Street
San Bernardino CA 92405

Depth: 650-670'

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ANALYSIS RESULTS
mg/L	Total Hardness (as CaCO3)	96.0
mg/L	Calcium (Ca)	17.6
mg/L	Magnesium (Mg)	12.8
mg/L	Sodium (Na)	91.4
mg/L	Potassium (K)	5.9
Total Cations	Meq/L Value: 6.0	
mg/L	Total Alkalinity (As CaCO3)	131.8
mg/L	Hydroxide (OH)	< 1.0
mg/L	Carbonate (CO3)	< 1.0
mg/L	Bicarbonate (HCO3)	161.0
mg/L*	Sulfate (SO4)	78.3
mg/L*	Chloride (Cl)	47.2
mg/L	Nitrate (as NO3)	11.1
mg/L	Fluoride (F) Temp. Depend.	0.9
Total Anions	Meq/L Value: 5.8	
Std. Units	PH (Laboratory)	9.6
umho/cm**	Specific Conductance (E.C.)	600.0
mg/L***	Total Filterable Residue at 180C	368.0
Units	Apparent Color (Unfiltered)	70.0
TON	Odor Threshold at 60 C	1.0
NTU	Lab Turbidity	71.0
mg/L	MBAS	< 0.02
REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ANALYSIS RESULTS
ug/L	Arsenic (As)	< 10
ug/L	Barium (Ba)	< 100
ug/L	Cadmium (Cd)	< 1
ug/L	Chromium (Total Cr)	< 10
ug/L	Copper (Cu)	< 50
ug/L	Iron (Fe)	4350
ug/L	Lead (Pb)	138
ug/L	Manganese (Mn)	< 50
ug/L	Mercury (Hg)	< 1
ug/L	Selenium (Se)	< 5
ug/L	Silver (Ag)	< 10
ug/L	Zinc (Zn)	< 50
ug/L	Aluminum	878

Depth: 1320-1340'

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ANALYSIS RESULTS
mg/L	Total Hardness (as CaCO3)	138.0
mg/L	Calcium (Ca)	38.4
mg/L	Magnesium (Mg)	7.8
mg/L	Sodium (Na)	288.9
mg/L	Potassium (K)	7.9
Total Cations	Meq/L Value: 13.9	
mg/L	Total Alkalinity (As CaCO3)	113.2
mg/L	Hydroxide (OH)	< 1.0
mg/L	Carbonate (CO3)	< 1.0
mg/L	Bicarbonate (HCO3)	138.1
mg/L*	Sulfate (SO4)	69.6
mg/L*	Chloride (Cl)	372.0
mg/L	Nitrate (as NO3)	< 1.0
mg/L	Fluoride (F) Temp. Depend.	1.1
Total Anions	Meq/L Value: 14.2	
Std. Units	PH (Laboratory)	7.4
umho/cm**	Specific Conductance (E.C.)	1548.8
mg/L***	Total Filterable Residue at 180C	954.8
Units	Apparent Color (Unfiltered)	70.0
TON	Odor Threshold at 60 C	1.0
NTU	Lab Turbidity	5.8
mg/L	MBAS	< 0.02
REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ANALYSIS RESULTS
ug/L	Arsenic (As)	< 10
ug/L	Barium (Ba)	120
ug/L	Cadmium (Cd)	< 1
ug/L	Chromium (Total Cr)	< 10
ug/L	Copper (Cu)	< 50
ug/L	Iron (Fe)	32998
ug/L	Lead (Pb)	< 5
ug/L	Manganese (Mn)	208
ug/L	Mercury (Hg)	< 1
ug/L	Selenium (Se)	< 5
ug/L	Silver (Ag)	< 10
ug/L	Zinc (Zn)	< 50
ug/L	Aluminum	1550



CONDENSED CUTTINGS DESCRIPTION

0-1380 SAND
Fine to coarse sand with scattered gravel lenses down to 600 feet.

580-600 Thin clay lenses.

750-760 Some gravel.

860-1000 Thin clay lenses.

PAGE OF | DRILL HOLE BR-3 [Page 2]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-3

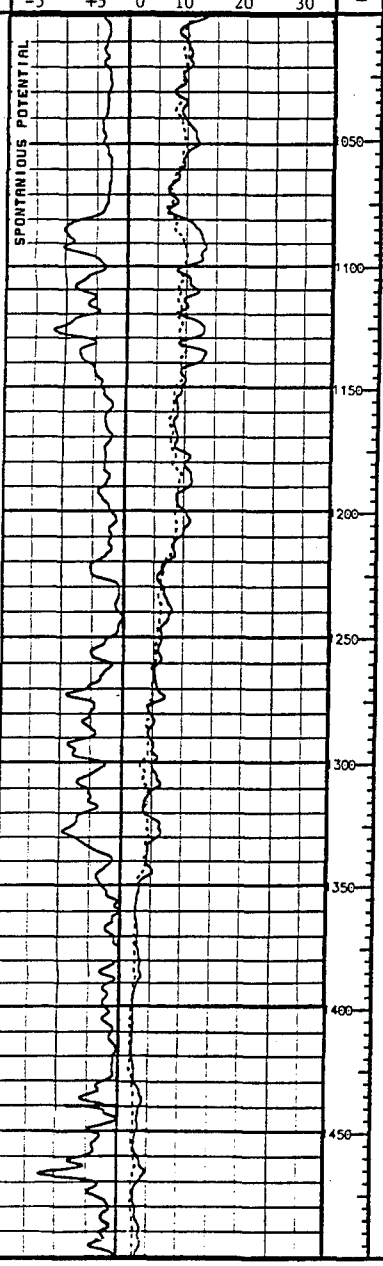
FEATURE Drill Hole Completed with Nested Piezometers — DRILLED DEPTH 2024 Ft.
PROJECT Indian Wells Valley Groundwater Project — COMPLETED DEPTH 1990 Ft.
LOCATION T.27 S., R.39 E., Sec. 11d — STATE CA — BEGUN 3-06-91
TYPE OF WELL Observation — FINISHED 3-19-91
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION 2508.6
COORDINATES — TOP OF CASING ELEV. 2511.9
HOLE LOGGED BY Cuttings Description by Dipti Barari, N. Amer. Chem. Co., Trona CA — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS Yes, See Notes — TDS See Notes
OTHER LOGS Drilling Time — REVIEWED BY Dennis Watt, USBR

NOTES

Depth: 1850-1870'

REPORTING UNITS	ALL CONSTITUENTS REPORTED uG/L	ANALYSIS RESULTS
mg/L	Total Hardness (as CaCO3)	1490.0
mg/L	Calcium (Ca)	496.6
mg/L	Magnesium (Mg)	38.9
mg/L	Sodium (NA)	1536.4
mg/L	Potassium (K)	14.6
Total Cations	meq/L Value: 95.2	
mg/L	Total Alkalinity (AS CaCO3)	32.0
mg/L	Hydroxide (OH)	< 1.0
mg/L	Carbonate (CO3)	< 1.0
mg/L	Bicarbonate (HCO3)	32.0
mg/L*	Sulfate (SO4)	737.5
mg/L*	Chloride (Cl)	3250.0
mg/L	Nitrate (as NO3)	38.1
mg/L	Fluoride (F) Temp. Depend.	3.4
Total Anions	meq/L Value: 97.0	
Std. Units	PH (Laboratory)	7.2
umho/cm**	Specific Conductance (E.C.)	10700.
mg/L***	Total Filterable Residue at 180C	6634.0
Units	Apparent Color (Unfiltered)	40.0
TON	Odor Threshold at 60 C	3.0
FTU	Lab Turbidity	71.0
mg/L	MBAS	< 0.02

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ANALYSIS RESULTS
ug/L	Arsenic (As)	< 10
ug/L	Barium (Ba)	100
ug/L	Cadmium (Cd)	< 1
ug/L	Chromium (Total Cr)	< 10
ug/L	Copper (Cu)	< 50
ug/L	Iron (Fe)	780
ug/L	Lead (Pb)	< 5
ug/L	Manganese (Mn)	380
ug/L	Mercury (Hg)	< 1
ug/L	Selenium (Se)	< 5
ug/L	Silver (Ag)	< 10
ug/L	Zinc (Zn)	< 50
ug/L	Aluminum	240



CONDENSED CUTTINGS DESCRIPTION

0-1380 SAND
Fine to coarse sand with scattered gravel lenses down to 600 feet.

1240-1380 Thin clay lenses.

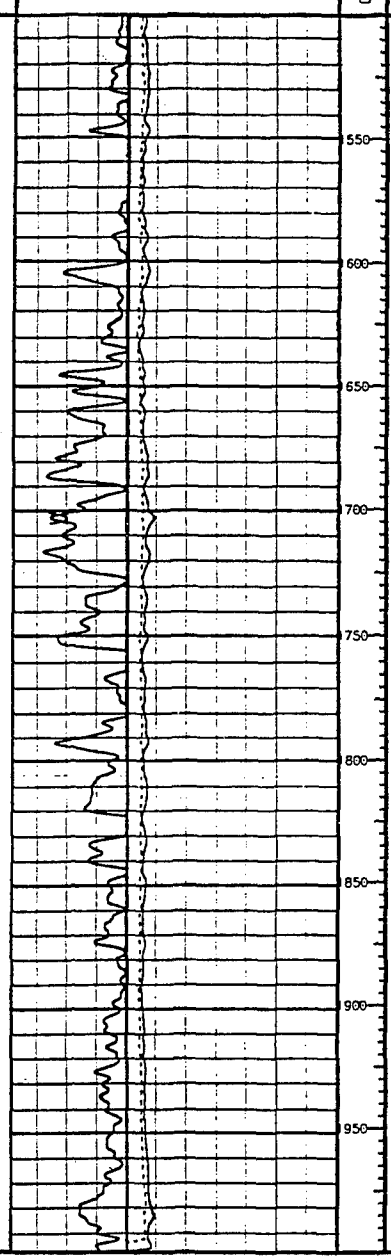
1380-1740 CLAY
Mostly brown clay with some reddish brown and yellow brown clay.

1380-1410 Thin clay lenses.

PAGE OF | DRILL HOLE BR-3 [Page 3]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-3

FEATURE Drill Hole Completed with Nested Piezometers — DRILLED DEPTH 2024 Ft.
PROJECT Indian Wells Valley Groundwater Project — COMPLETED DEPTH 1990 Ft.
LOCATION T.27 S., R.39 E., Sec. 11d — STATE CA — BEGUN 3-06-91
TYPE OF WELL Observation — FINISHED 3-19-91
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION 2508.6
COORDINATES — TOP OF CASING ELEV. 2511.9
HOLE LOGGED BY Cuttings Description by Dipti Barari, N. Amer. Chem. Co., Trona CA — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS Yes, See Notes
TDS See Notes
OTHER LOGS Drilling Time — REVIEWED BY Dennis Watt, USBR

NOTES		DEPTH (FEET)	LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION
		550, 600, 650, 700, 750, 800, 850, 900, 950		**1380-1740 CLAY** Mostly brown clay with some reddish brown and yellow brown clay. 1680-1740 Sand layers. **1740-1880 SAND WITH CLAY LAYERS** Fine to coarse sand with brown clay layers. **1880-1970 SAND** Medium to coarse sand with a few thin clay lenses. **1970-2024 SAND WITH CLAY LAYERS** Mostly medium to coarse sand. Twenty to thirty percent of the cuttings were clay.

PAGE OF | DRILL HOLE BR-3 [Page 4]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-4

FEATURE Drill Hole Completed with Single Piezometer (Intended Mulitiple Completion) — DRILLED DEPTH 2020 Ft.
PROJECT Indian Wells Valley Groundwater Project — COMPLETED DEPTH 1210 Ft.
LOCATION T.26 S., R.39 E., Sec. 26a — STATE CA — BEGUN 8-29-90
TYPE OF WELL Observation — FINISHED 9-14-90
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION 2375.2
COORDINATES — TOP OF CASING ELEV. 2377.5
HOLE LOGGED BY Cuttings Description by Ken Turner, Kern Co. Water Agency — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS Yes, See Notes — TDS See Notes
OTHER LOGS Drilling Time — REVIEWED BY Dennis Watt, USBR

NOTES

DRILL SITE:
The well is located about 600 feet south of Hwy. 170, 1.05 miles west of Jack Ranch Road.

DRILLED BY:
U.S. Bureau of Reclamation. One crew from Sacramento and the other from Phoenix.

DRILLING RIG:
Truck mounted Portadrill TLS-542 rotary.

DRILLING METHOD:
Direct rotary with bentonite mud. 7 7/8 inch roller cone bit to total depth. Reamed to total depth with a 10 1/4 inch roller cone bit.

HOLE COMPLETION:
Installed one 2" diameter steel pipe with a 10' two inch diameter screen on the bottom. The screen is at a depth interval of 1190'-1200'. Benseal (bentonite) plug set at the following depth interval: 960'-1130'.

This hole was to be completed with multiple piezometers. However, much difficulty ensued when the 2" filter pack tremie pipe could not be moved from the bottom of the hole. The deep piezometer (2000 ft.) was pulled out and the tremie broke during the attempt to pull it. An overshot was washed and rotated over the top of the stuck tremie. The overshot twisted off near the bottom after retrieving most of the tremie. Numerous fishing trips removed pipe down to 1220 feet. Lead impression showed that the hole was filled around the pipes at 1220 feet. Decided to complete the remaining open hole with one piezometer to 1200 feet. Nearby production wells are screened down to about 1000 feet.

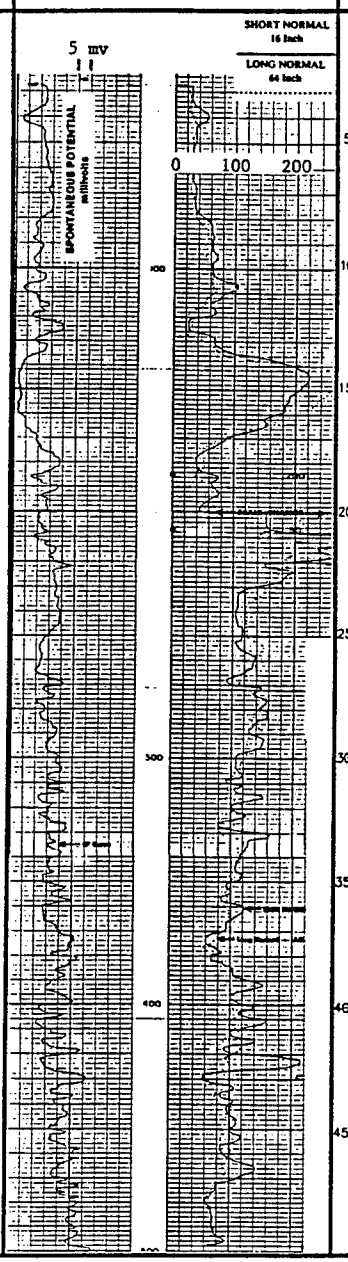
DEVELOPMENT:
The piezometer was air-lifted and discharged an estimated 5-10 gallons per minute. The water sample for lab analysis was collected at the end of development.

DEPTH TO WATER:
Depth was measured on December 12, 1991 from the top of the outer casing.

Screen Interval	Depth (Ft)
1190'-1200'	252'

All depth to water measurements are available in the Geohydrologic Appendix for this project.

welenco
ELECTRIC LOG



CONDENSED CUTTINGS DESCRIPTION

The interpretation below is reduced from a description of samples collected every 10 feet from the drilling mud return.

GENERAL

The collected samples and drilling character indicate a non-cemented alluvial fill from land surface to total depth.

Depth intervals are feet below land surface.

0-160 SAND
Light brown, medium to coarse.

40-60 Coarse.

60-120 Coarse, occasional fine gravel.

120-130 Yellowish brown, very fine to fine.

130-140 Brownish gray.

140-150 Pinkish gray.

150-160 Gravelly, pinkish gray.

160-250 GRAVELLY SAND
Pinkish gray, fine to coarse.

240-250 Dark gray to black, medium to coarse.

250-270 Gray, medium to coarse.

330-390 Silty with fine gravel, brownish gray.

390-420 Brown.

420-510 SILTY SAND
Brown, fine to coarse.

PAGE OF | DRILL HOLE BR-4 [Page 1]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-4

FEATURE Drill Hole Completed with Single Piezometer (Intended Mulitiple Completion) — DRILLED DEPTH 2020 Ft.
PROJECT Indian Wells Valley Groundwater Project — COMPLETED DEPTH 1210 Ft.
LOCATION T.26 S., R.39 E., Sec. 26a — STATE CA — BEGUN 8-29-90
TYPE OF WELL Observation — FINISHED 9-14-90
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION 2375.2
COORDINATES — TOP OF CASING ELEV. 2377.5
HOLE LOGGED BY Cuttings Description by Ken Turner, Kern Co. Water Agency — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS Yes, See Note
TDS See Notes
OTHER LOGS Drilling Time — REVIEWED BY Dennis Watt, USBR

NOTES

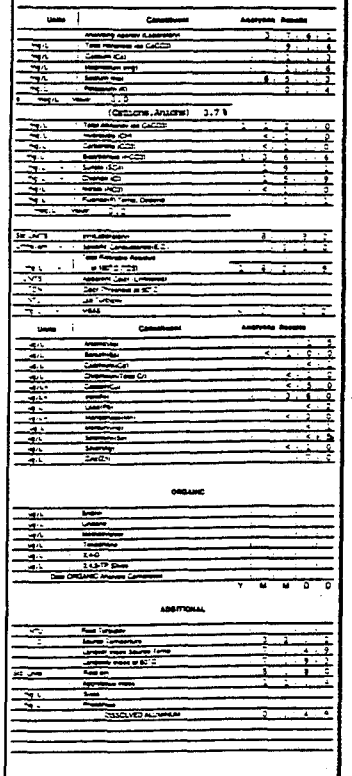
SLUG TEST RESULTS:
Estimated transmissivity (ft^2/min) by the Cooper (1967) method for the 10 feet of aquifer at the screen.

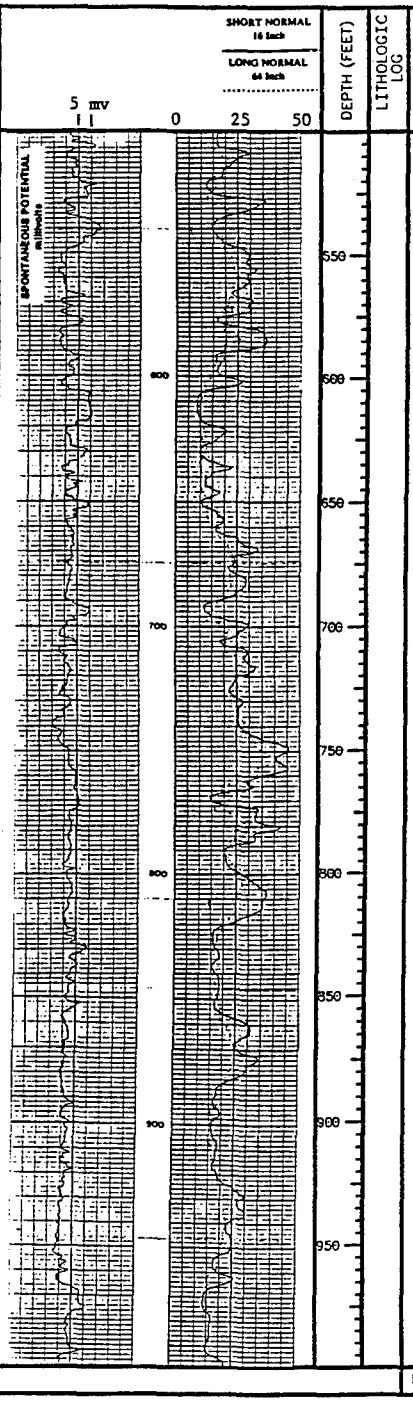
Piezometer	T
Medium	.28

WATER QUALITY:
Water analysis by:

Clinical Labs
1595 North "D" Street
San Bernardino CA 92405

Depth 1190'-1200'





CONDENSED CUTTINGS DESCRIPTION

420-510 SILTY SAND
Brown, fine to coarse.

500-510 Clayey, light gray to pale yellow.

510-600 GRAVELLY SAND
Light brown, medium to coarse sand, fine gravel.

520-530 Silty, fine to coarse.

580-600 Silty, light gray to yellow brown, very fine to medium.

600-630 CLAY
Dark gray, plastic.

630-680 SILTY, CLAYEY SAND
Dark gray, very fine to medium

680-990 GRAVELLY SAND
Light brown, fine to coarse sand, fine gravel.

740-810 Silty, gray to light brown.

810-950 Pink to gray to light brown, medium to coarse sand.

950-970 Silty, pink to gray to light brown.

970-990 Sand, light brown to gray.

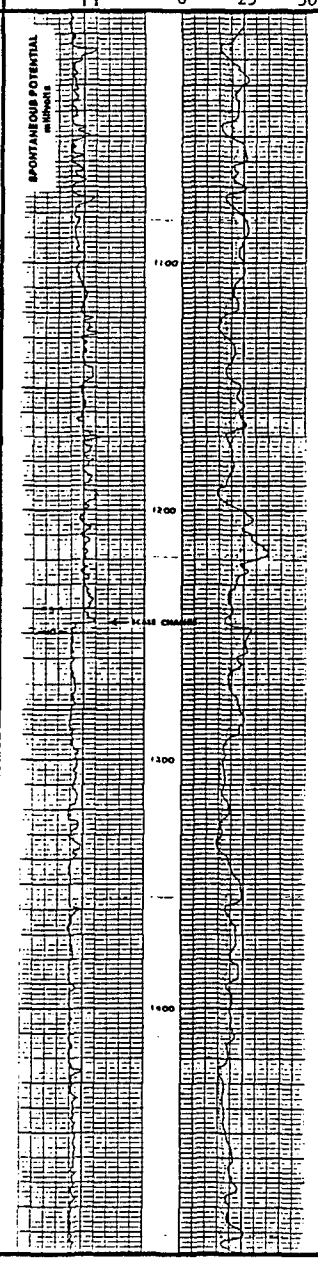
990-1200 SANDY SILT
Grayish brown, fine to medium sand.

990-1000 Very fine to coarse.

PAGE OF | DRILL HOLE BR-4 [Page 2]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-4

FEATURE Drill Hole Completed with Single Piezometer (Intended Mulitiple Completion) DRILLED DEPTH 2020 Ft.
PROJECT Indian Wells Valley Groundwater Project COMPLETED DEPTH 1210 Ft.
LOCATION T.26 S., R.39 E., Sec. 26a STATE CA BEGUN 8-29-90
TYPE OF WELL Observation FINISHED 9-14-90
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity GROUND ELEVATION 2375.2
COORDINATES TOP OF CASING ELEV. 2377.5
HOLE LOGGED BY Cuttings Description by Ken Turner, Kern Co. Water Agency DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature LAB ANALYSIS Yes, See Note
TDS See Notes
OTHER LOGS Drilling Time REVIEWED BY Dennis Watt, USBR

NOTES	SHORT NORMAL 16 Inch / LONG NORMAL 64 Inch; 5 mv 0 25 50; SPONTANEOUS POTENTIAL millivolts	DEPTH (FEET)	LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION
		1050 1100 1150 1200 1250 1300 1350 1400 1450		**990-1200 SANDY SILT** Grayish brown, fine to medium sand. 1050-1080 Clayey. 1140-1160 Pinkish gray, medium to coarse sand, chunks of olive green dense clay. 1160-1200 Light brown to gray, fine to coarse sand, some gravel. **1200-1500 SAND** Pale brown, fine to coarse. 1230-1300 Silty. 1300-1340 Clayey, very fine to coarse. 1340-1450 Very fine to coarse. 1450-1460 Coarse to very coarse, chunks of olive green clay. 1460-1490 Silty, light brown to gray, very fine to coarse. 1490-1500 Light brown to gray, medium to coarse.

PAGE OF | DRILL HOLE BR-4 [Page 3]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-4

FEATURE Drill Hole Completed with Single Piezometer (Intended Mulitiple Completion) — DRILLED DEPTH 2020 Ft.
PROJECT Indian Wells Valley Groundwater Project — COMPLETED DEPTH 1210 Ft.
LOCATION T.26 S., R.39 E., Sec. 26a — STATE CA — BEGUN 8-29-90
TYPE OF WELL Observation — FINISHED 9-14-90
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION 2375.2
COORDINATES — TOP OF CASING ELEV. 2377.5
HOLE LOGGED BY Cuttings Description by Ken Turner, Kern Co. Water Agency — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS Yes, See Note — TDS See Notes
OTHER LOGS Drilling Time — REVIEWED BY Dennis Watt, USBR

NOTES	SHORT NORMAL 16 inch / LONG NORMAL 64 inch; 10 mv; 0 25 50; SPONTANEOUS POTENTIAL millivolts	DEPTH (FEET)	LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION
		550, 600, 650, 700, 750, 800, 850, 900, 950		1500-1995 SAND Light brown to gray, fine to coarse. 1560-1570 Silty. 1600-1610 Silty. 1630-1650 Silty. 1680-1720 Silty. 1740-1780 Silty. 1780-1840 Gray, medium to coarse. 1840-1880 Silty, pale brown. 1880-1995 Pale brown to light gray.

PAGE OF | DRILL HOLE BR-4 [Page 4]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-5

FEATURE Drill Hole Completed with Nested Piezometers — DRILLED DEPTH 2013 Ft.
PROJECT Indian Wells Valley Groundwater Project — COMPLETED DEPTH 1980 Ft.
LOCATION T.25 S., R.38 E., Sec. 34j — STATE — BEGUN 12-19-91
TYPE OF WELL Observation — FINISHED 1-03-92
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION 2518.6
COORDINATES — TOP OF CASING ELEV. 2512.5
HOLE LOGGED BY Cuttings Description by Mike Stoner, Naval Air Warfare Station — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS Yes, See Notes
TDS See Notes
OTHER LOGS Drilling Time — REVIEWED BY Dennis Watt, USBR

NOTES

DRILL SITE:
The well is about 200 feet west of Hwy. 395 at a point about 1/2 mile north of the intersection of Leliter Road and Hwy. 395.

DRILLED BY:
Welch and Howell Drilling of El Centro CA.

DRILLING RIG:
Mac double (106' total height) direct rotary rig.

DRILLING METHOD:
Direct rotary with bentonite mud. 14 3/4 inch roller cone bit from 56 to 1014 feet. 12 1/4 roller cone bit from 1014 to total depth.

HOLE COMPLETION:
Installed three 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each. Screens are at the following depth intervals: 850'-870', 1590'-1610', 1960'-1980'. Cement plugs set at the following depth intervals: 1365'-1385', 1696'-1706'?, 1788'-1800'.

DEVELOPMENT:
Each piezometer was air-lifted 3-4 hours and discharged an estimated 5-10 gallons per minute. Water samples for lab analysis were collected at the end of development.

DEPTH TO WATER:
All depths reported below were measured on January 28, 1992 from the top of the protective casing. These depths were measured only about 5 minutes after the cap was removed. Actual and relative depths may be different in subsequent measurements.

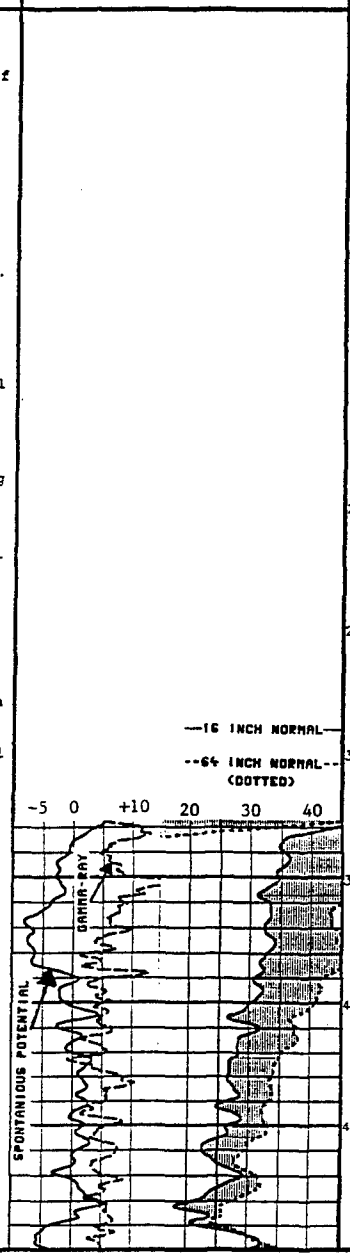
Screen Interval	Depth (Ft)
850'-870'	334.9
1590'-1610'	341.9
1960'-1980'	343.7

All depth to water measurements made during the project life are available in the Geohydrologic Appendix for this project.

SLUG TEST RESULTS:
Estimated transmissivity (T) (ft^2/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.

Piezometer	T
Shallow	.23
Medium	.15
Deep	.18

BARBOUR CORP
WELL SURVEYING
805-482-4888
ELECTRIC LOG



CONDENSED CUTTINGS DESCRIPTION

The description below is reduced from a description of samples collected every 10 feet from the drilling mud return.

GENERAL

The collected samples and drilling character indicate a non-cemented alluvial fill from land surface to total depth.

Depth intervals are feet below land surface.

0-60 No samples.

60-800 SAND
Medium to coarse, off-white, fairly to very well sorted, subrounded sand. Feldspars and quartz dominate.

60-80 Well rounded.

100-110 Very coarse.

120-130 Coarse to very coarse.

180-190 Very coarse.

240-250 Very coarse.

250-260 Subangular.

300-310 Fine to medium and unsorted.

440-450 Very coarse.

490-500 Coarse to very coarse.

PAGE OF | DRILL HOLE BR-5 [Page 1]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-5

FEATURE: Drill Hole Completed with Nested Piezometers — DRILLED DEPTH: 2013 Ft.
PROJECT: Indian Wells Valley Groundwater Project — COMPLETED DEPTH: 1980 Ft.
LOCATION: T.25 S., R.38 E., Sec. 34j — STATE: — BEGUN: 12-19-91
TYPE OF WELL: Observation — FINISHED: 1-03-92
PURPOSE: Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION: 2518.6
COORDINATES: — TOP OF CASING ELEV.: 2512.5
HOLE LOGGED BY: Cuttings Description by Mike Stoner, Naval Air Warfare Station — DEPTH TO WATER (DATE): See Notes
GEOPHYSICAL LOGS: Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS: Yes, See Notes
TDS: See Notes
OTHER LOGS: Drilling Time — REVIEWED BY: Dennis Watt, USBR

NOTES

SLUG TEST RESULTS:
Estimated transmissivity (T) (ft^2/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.

Piezometer	T
Shallow	.23
Medium	.15
Deep	.18

WATER QUALITY:
Water analysis by:

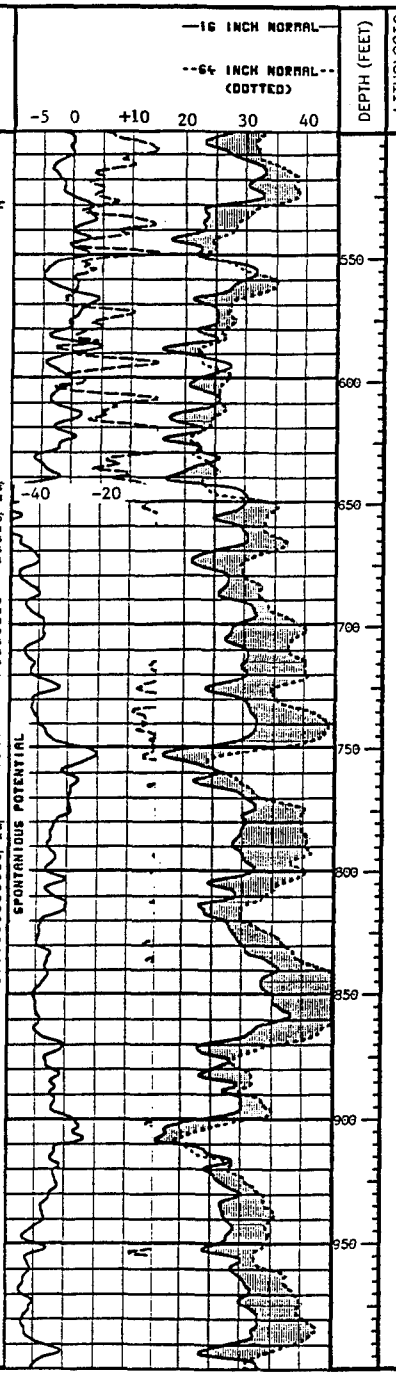
Clinical Labs
1595 North "D" Street
San Bernardino CA 92405

850-870'

REPORTING UNITS	CONSTITUENT	ANALYSIS RESULTS
mg/L	Total Hardness (as CaCO3)	128.0
mg/L	Calcium (Ca)	30.8
mg/L	Magnesium (Mg)	10.5
mg/L	Sodium (Na)	154.6
mg/L	Potassium (K)	9.4
Cations	Meq/L Value: 9.3	
mg/L	Total Alkalinity (As CaCO3)	186.0
mg/L	Hydroxide (OH)	< 1.0
mg/L	Carbonate (CO3)	< 1.0
mg/L	Bicarbonate (HCO3)	226.9
mg/L*	Sulfate (SO4)	149.6
mg/L*	Chloride (Cl)	85.5
mg/L	Nitrate (as NO3)	< 1.0
mg/L	Fluoride (F) Temp. Depend.	1.1
Anions	Meq/L Value: 9.3	
Std. Units	PH (Laboratory)	8.5
umho/cm**	Specific Conductance (E.C.)	1000.0
mg/L***	Total Filterable Residue at 180C	533.5
Units	Apparent Color (Unfiltered)	< 70.0
TON	Odor Threshold at 60 C	2.0
NTU	Lab Turbidity	38.0
mg/L	MBAS	< 0.02

INORGANIC CHEMICALS

REPORTING UNITS	CONSTITUENT	ANALYSIS RESULTS
ug/L	Aluminum (Al)	210.00
ug/L	Arsenic (As)	17.00
ug/L	Barium (Ba)	<100.00
ug/L	Cadmium (Cd)	< 1.00
ug/L	Chromium (Total Cr)	< 10.00
ug/L	Copper (Cu)	< 50.00
ug/L	Iron (Fe)	2655.0
ug/L	Lead (Pb)	11.00
ug/L	Manganese (Mn)	175.00
ug/L	Mercury (Hg)	< 1.00
ug/L	Selenium (Se)	< 5.00
ug/L	Silver (Ag)	< 10.00
ug/L	Zinc (Zn)	< 50.00



CONDENSED CUTTINGS DESCRIPTION

60-800 SAND
Medium to coarse, off-white, fairly to very well sorted, subrounded sand. Feldspars and quartz dominate.

600-610 Very coarse.

620-640 Very coarse.

790-800 Fine to medium.

800-900 SAND
Fine, off-white, fairly to very well sorted, subrounded sand. Feldspar and quartz dominated.

820-840 With medium sand.

840-860 Medium sand.

880-900 Very fine sand with silt.

900-930 SILTY SAND
Very fine, light gray, very well sorted, subrounded, silty sand with some clay.

930-1090 SAND
Fine, off-white, very well sorted, subrounded, sand.

970-980 Very fine.

980-990 Medium.

990-1000 Fine to medium.

PAGE OF | DRILL HOLE BR-5 [Page 2]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-5

FEATURE Drill Hole Completed with Nested Piezometers — DRILLED DEPTH 2013 Ft.
PROJECT Indian Wells Valley Groundwater Project — COMPLETED DEPTH 1980 Ft.
LOCATION T.25 S., R.38 E., Sec. 34j — STATE — BEGUN 12-19-91
TYPE OF WELL Observation — FINISHED 1-03-92
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION 2518.6
COORDINATES — TOP OF CASING ELEV. 2512.5
HOLE LOGGED BY Cuttings Description by Mike Stoner, Naval Air Warfare Station — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral — LAB ANALYSIS Yes, See Notes
Temperature — TDS See Notes
OTHER LOGS Drilling Time — REVIEWED BY Dennis Watt, USBR

NOTES

1590-1610'

REPORTING UNITS	CONSTITUENT	ANALYSES RESULTS
mg/L	Total Hardness (as CaCO3)	80.0
mg/L	Calcium (Ca)	20.8
mg/L	Magnesium (Mg)	6.8
mg/L	Sodium (Na)	346.0
mg/L	Potassium (K)	9.0
Cations	Meq/L Value: 16.9	
mg/L	Total Alkalinity (AS CaCO3)	626.0
mg/L	Hydroxide (OH)	< 1.0
mg/L	Carbonate (CO3)	< 1.0
mg/L	Bicarbonate (HCO3)	763.7
mg/L*	Sulfate (SO4)	65.5
mg/L*	Chloride (Cl)	72.7
mg/L	Nitrate (as NO3)	< 1.0
mg/L	Fluoride (F) Temp. Depend.	2.1
Anions	Meq/L Value: 16.0	
Std. Units	PH (Laboratory)	8.7
umho/cm**	Specific Conductance (E.C.)	1880.0
mg/L***	Total Filterable Residue at 180C	836.9
Units	Apparent Color (Unfiltered)	> 70.0
TON	Odor Threshold at 60 C	1.0
NTU	Lab Turbidity	> 200.0
mg/L	MBAS	< 0.02

INORGANIC CHEMICALS

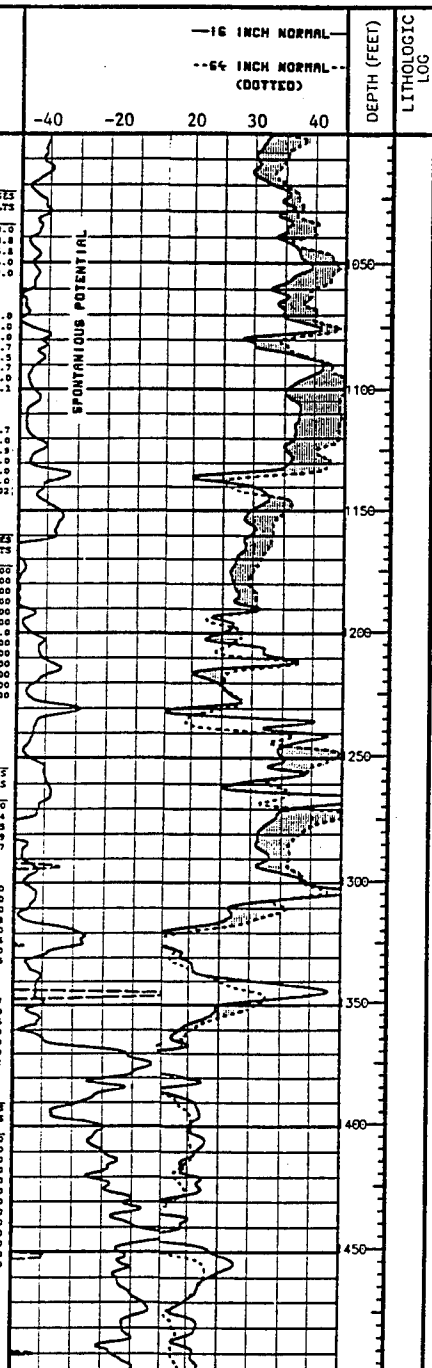
REPORTING UNITS	CONSTITUENT	ANALYSES RESULTS
ug/L	Aluminum (Al)	460.00
ug/L	Arsenic (As)	80.00
ug/L	Barium (Ba)	170.00
ug/L	Cadmium (Cd)	< 1.00
ug/L	Chromium (Total Cr)	< 10.00
ug/L	Copper (Cu)	< 50.00
ug/L	Iron (Fe)	1520.0
ug/L	Lead (Pb)	6.00
ug/L	Manganese (Mn)	165.00
ug/L	Mercury (Hg)	< 1.00
ug/L	Selenium (Se)	< 5.00
ug/L	Silver (Ag)	< 10.00
ug/L	Zinc (Zn)	< 50.00

1960-1980'

REPORTING UNITS	CONSTITUENT	ANALYSES RESULTS
mg/L	Total Hardness (as CaCO3)	108.0
mg/L	Calcium (Ca)	14.4
mg/L	Magnesium (Mg)	17.3
mg/L	Sodium (Na)	334.9
mg/L	Potassium (K)	8.7
Cations	Meq/L Value: 16.9	
mg/L	Total Alkalinity (AS CaCO3)	708.0
mg/L	Hydroxide (OH)	< 1.0
mg/L	Carbonate (CO3)	< 1.0
mg/L	Bicarbonate (HCO3)	863.8
mg/L*	Sulfate (SO4)	90.0
mg/L*	Chloride (Cl)	68.6
mg/L	Nitrate (as NO3)	< 1.0
mg/L	Fluoride (F) Temp. Depend.	1.5
Anions	Meq/L Value: 18.0	
Std. Units	PH (Laboratory)	8.7
umho/cm**	Specific Conductance (E.C.)	1870.0
mg/L***	Total Filterable Residue at 180C	898.6
Units	Apparent Color (Unfiltered)	>70.0
TON	Odor Threshold at 60 C	1.0
NTU	Lab Turbidity	>200.0
mg/L	MBAS	< 0.02

INORGANIC CHEMICALS

REPORTING UNITS	CONSTITUENT	ANALYSES RESULTS
ug/L	Aluminum (Al)	260.00
ug/L	Arsenic (As)	35.00
ug/L	Barium (Ba)	200.00
ug/L	Cadmium (Cd)	< 1.00
ug/L	Chromium (Total Cr)	< 10.00
ug/L	Copper (Cu)	< 50.00
ug/L	Iron (Fe)	1165.0
ug/L	Lead (Pb)	11.00
ug/L	Manganese (Mn)	175.00
ug/L	Mercury (Hg)	< 1.00
ug/L	Selenium (Se)	< 5.00
ug/L	Silver (Ag)	< 10.00
ug/L	Zinc (Zn)	< 50.00



CONDENSED CUTTINGS DESCRIPTION

930-1090 SAND
Fine, off-white, very well sorted, subrounded, sand.

1020-1030 Some silt.

1030-1040 Very fine.

1050-1060 Very fine.

1070-1080 Some mafics.

1080-1090 Some medium sand.

1090-1340 SAND
Medium, off-white, very well sorted, subrounded sand. Feldspars and quartz dominate.

1120-1130 Some fine sand.

1150-1170 Some fine sand.

1200-1210 Coarse with medium sand.

1210-1230 Fine to medium with some coarse sand.

1250-1270 Medium with some fine sand.

1270-1330 Fine to medium sand with some silt.

1340-1450 SAND
Fine and fine to medium, off-white, fairly to very well sorted, subrounded sand. Feldspars and quartz dominate.

1400-1410 Medium sand.

1410-1420 Some silt.

1450-1500 SAND
Medium, off-white, very well sorted, subrounded sand. Feldspars and quartz dominate.

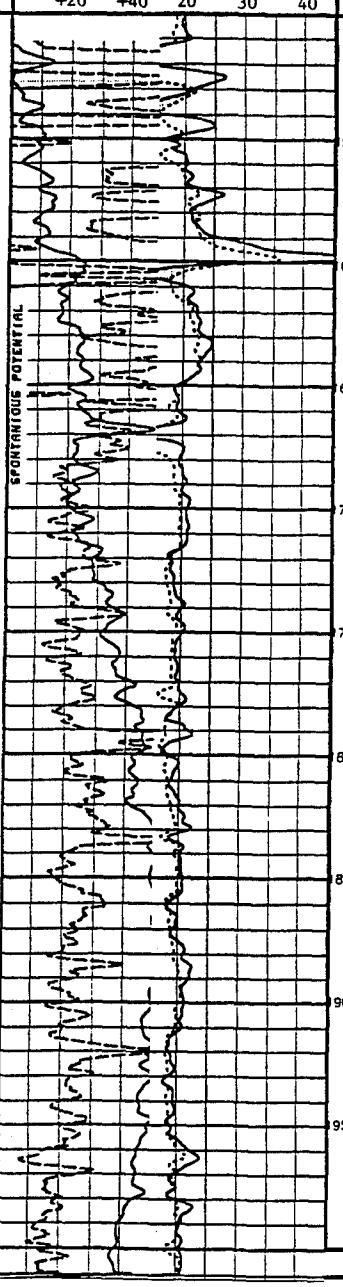
1480-1500 Some coarse sand.

PAGE OF | DRILL HOLE BR-5 [Page 3]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-5

FEATURE Drill Hole Completed with Nested Piezometers — DRILLED DEPTH 2013 Ft.
PROJECT Indian Wells Valley Groundwater Project — COMPLETED DEPTH 1980 Ft.
LOCATION T.25 S., R.38 E., Sec. 34j — STATE — BEGUN 12-19-91
TYPE OF WELL Observation — FINISHED 1-03-92
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION 2518.6
COORDINATES — TOP OF CASING ELEV. 2512.5
HOLE LOGGED BY Cuttings Description by Mike Stoner, Naval Air Warfare Station — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS Yes, See Notes
TDS See Notes
OTHER LOGS Drilling Time — REVIEWED BY Dennis Watt, USBR

NOTES



LITHOLOGIC LOG

CONDENSED CUTTINGS DESCRIPTION

1500-1720 SAND
Fine, off-white, fairly to very well sorted, subrounded sand. Feldspars and quartz dominate.

1580-1610 Fine to medium sand.
1610-1630 Medium sand.
1640-1650 Medium sand.
1660-1670 Medium with some coarse sand.
1700-1710 Some medium sand.

1720-2000 SAND
Medium, off-white, fairly to very well sorted, subrounded sand. Feldspars and quartz dominate.

1850-1860 Fine to medium sand.
1860-1870 Some coarse sand.
1880-1890 Some coarse sand.
1910-1920 Some coarse sand.
1930-1950 Some fine sand.
1960-1970 Some fine sand.
1970-1980 Some coarse sand.
1990-2000 Fine to medium sand.

PAGE OF | DRILL HOLE BR-5 [Page 4]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-6

FEATURE	Drill Hole Completed with Nested Piezometers	DRILLED DEPTH	2012 Ft.
PROJECT	Indian Wells Valley Groundwater Project	COMPLETED DEPTH	1660 Ft.
LOCATION	T.25 S., R. 38 E., Sec. 12m	STATE CA BEGUN	1-10-92
TYPE OF WELL	Observation	FINISHED	1-17-92
PURPOSE	Lithology, Groundwater Quality, Piezometeric Level, Hydraulic Conductivity	GROUND ELEVATION	2352.2
COORDINATES		TOP OF CASING ELEV.	2354.1
HOLE LOGGED BY	Cuttings Description by Mike Stoner, Naval Air Warfare Station	DEPTH TO WATER (DATE)	See Notes
GEOPHYSICAL LOGS	Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature	LAB ANALYSIS	Yes, See Notes
		TDS	See Notes
OTHER LOGS	Drilling Time	REVIEWED BY	Dennis Watt, USBR

NOTES

DRILL SITE:
The well is just inside (east) the Naval Weapons Center boundary (which is parallel Brown Road) along dirt eastward extension of the east-west section of Brown Road.

DRILLED BY:
Welch and Howell Drilling of El Centro CA.

DRILLING RIG:
Mac double (106' total height) direct rotary rig.

DRILLING METHOD:
Direct rotary with bentonite mud. 14 3/4 inch roller cone bit from 56 to 1010 feet. 12 1/4 roller cone bit from 1010 to total depth.

HOLE COMPLETION:
Installed three 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each. Screens are at the following depth intervals: 330'-350', 1190'-1210', 1640'-1660'. Cement plugs set at the following depth intervals: 520'-550', 900'-925'?, 1400'-1420'.

DEVELOPMENT:
Each piezometer was air-lifted about 2 hours and discharged an estimated 5-10 gallons per minute. Water samples for lab analysis were collected at the end of development.

DEPTH TO WATER:
All depths reported below were measured on January 28, 1992 from the top of the protective casing. These depths were measured only about 5 minutes after the cap was removed. Actual and relative depths may be different in subsequent measurements.

Screen Interval	Depth (Ft)
330'-350'	163.9
1190'-1210'	164.6
1640'-1660'	149.9

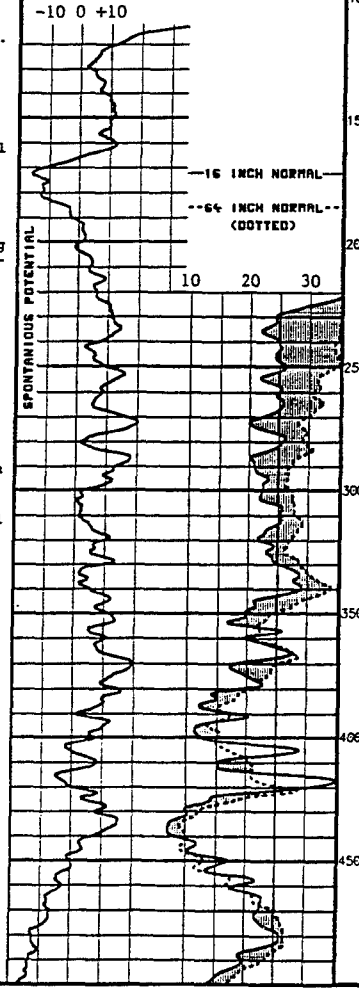
All depth to water measurements made during the project life are available in the Geohydrologic Appendix for this project.

SLUG TEST RESULTS:
Estimated transmissivity (T) (ft^2/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.

Piezometer	T
Shallow	.02*
Medium	.25
Deep	.20

*Note - This is suspiciously low.

BARBOUR CORP
WELL SURVEYING
805-482-4988
ELECTRIC LOG



DEPTH (FEET)

LITHOLOGIC LOG

CONDENSED CUTTINGS DESCRIPTION

The interpretation below is reduced from a description of samples collected every 10 feet from the drilling mud return.

GENERAL

The collected samples and drilling character indicate a non-cemented alluvial fill from land surface to total depth.

Depth intervals are feet below land surface.

0-60 Missing samples.

60-90 SAND
Light brown medium sand.

90-210 SAND
Light brown coarse sand.

90-100 Medium to coarse sand.

120-130 Medium to coarse sand.

140-150 Medium to coarse sand.

170-180 Trace of volcanics.

180-190 Very coarse sand and fine gravel.

200-210 Medium to coarse sand.

210-230 SAND
Light brown medium sand.

230-260 SAND
Light brown, medium to coarse sand.

260-290 SAND
Light brown very coarse sand with fine gravel.

290-320 SAND
Light brown coarse to very coarse sand.

310-320 Coarse.

320-340 SAND
Light brown medium to coarse sand.

340-370 SAND
Light brown medium sand.

350-360 Silty.

360-370 Medium to coarse, silty.

370-400 CLAY
Light gray-green clay.

380-400 Some fine to medium sand.

400-510 CLAY
Sandy gray-green clay.

440-450 Silty medium sand.

460-470 Gray-green clay.

PAGE OF | DRILL HOLE BR-6 [Page 1]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-6

FEATURE: Drill Hole Completed with Nested Piezometers — DRILLED DEPTH: 2012 Ft.
PROJECT: Indian Wells Valley Groundwater Project — COMPLETED DEPTH: 1660 Ft.
LOCATION: T.25 S., R. 38 E., Sec. 12m — STATE: CA — BEGUN: 1-10-92
TYPE OF WELL: Observation — FINISHED: 1-17-92
PURPOSE: Lithology, Groundwater Quality, Piezometeric Level, Hydraulic Conductivity — GROUND ELEVATION: 2352.2
COORDINATES: — TOP OF CASING ELEV.: 2354.1
HOLE LOGGED BY: Cuttings Description by Mike Stoner, Naval Air Warfare Station — DEPTH TO WATER (DATE): See Notes
GEOPHYSICAL LOGS: Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS: Yes, See Notes
TDS: See Notes
OTHER LOGS: Drilling Time — REVIEWED BY: Dennis Watt, USBR

NOTES

WATER QUALITY:
Water analysis by:

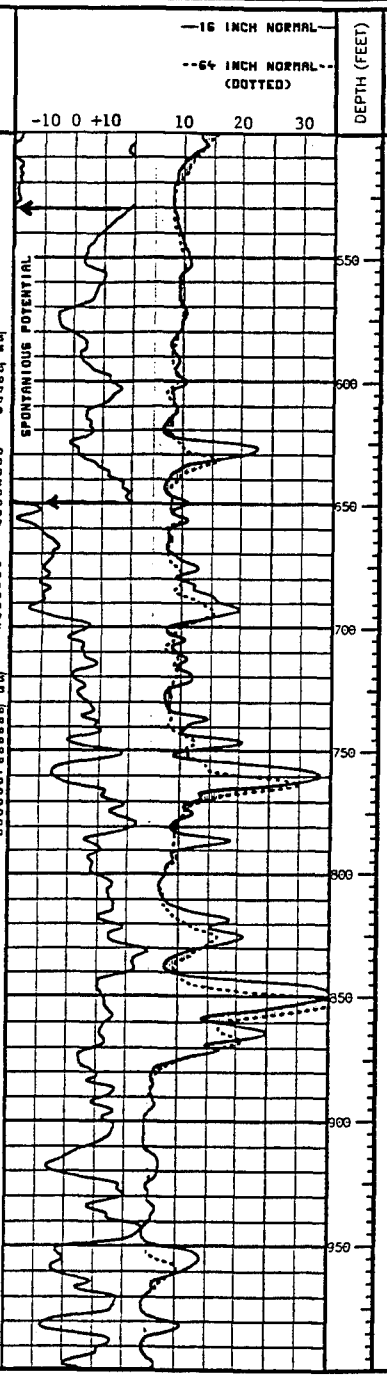
Clinical Labs
1595 North "D" Street
San Bernardino CA 92405

Depth: 330-350'

REPORTING UNITS	CONSTITUENT	ANALYSIS RESULTS
mg/L	Total Hardness (as CaCO3)	100.0
mg/L	Calcium (Ca)	24.0
mg/L	Magnesium (Mg)	9.7
mg/L	Sodium (Na)	198.7
mg/L	Potassium (K)	13.9
Cations	meq/L Value: 11.0	
mg/L	Total Alkalinity (As CaCO3)	192.0
mg/L	Hydroxide (OH)	< 1.0
mg/L	Carbonate (CO3)	< 1.0
mg/L	Bicarbonate (HCO3)	234.2
mg/L*	Sulfate (SO4)	168.0
mg/L*	Chloride (Cl)	76.0
mg/L	Nitrate (as NO3)	6.3
mg/L	Fluoride (F) Temp. Depend.	3.7
Anions	meq/L Value: 9.8	
Std. Units	PH (Laboratory)	8.9
umho/cm**	Specific Conductance (E.C.)	1030.0
mg/L**	Total Filterable Residue at 180C	596.3
Units	Apparent Color (Unfiltered)	15.0
TON	Odor Threshold at 60 C	2.0
NTU	Lab Turbidity	180.9
mg/L	MBAs	< 0.02

INORGANIC CHEMICALS

REPORTING UNITS	CONSTITUENT	ANALYSIS RESULTS
ug/L	Aluminum (Al)	1605.0
ug/L	Arsenic (As)	195.00
ug/L	Barium (Ba)	<100.00
ug/L	Cadmium (Cd)	< 1.00
ug/L	Chromium (Total Cr)	< 10.00
ug/L	Copper (Cu)	< 50.00
ug/L	Iron (Fe)	12350.
ug/L	Lead (Pb)	7.00
ug/L	Manganese (Mn)	510.00
ug/L	Mercury (Hg)	< 1.00
ug/L	Selenium (Se)	< 5.00
ug/L	Silver (Ag)	< 10.00
ug/L	Zinc (Zn)	91.30



CONDENSED CUTTINGS DESCRIPTION

510-600 CLAY
Dark gray-green clay.

600-1700 CLAY
Gray-green clay.

610-620 Some medium to coarse sand.

780-800 Some fine to medium sand.

820-850 Some fine sand.

850-890 Missing samples.

890-1040 Some very fine sand.

PAGE OF | DRILL HOLE BR-6 [Page 2]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-6

FEATURE: Drill Hole Completed with Nested Piezometers — DRILLED DEPTH: 2012 Ft.
PROJECT: Indian Wells Valley Groundwater Project — COMPLETED DEPTH: 1660 Ft.
LOCATION: T.25 S., R. 38 E., Sec. 12m — STATE: CA — BEGUN: 1-10-92
TYPE OF WELL: Observation — FINISHED: 1-17-92
PURPOSE: Lithology, Groundwater Quality, Piezometeric Level, Hydraulic Conductivity — GROUND ELEVATION: 2352.2
COORDINATES: — TOP OF CASING ELEV.: 2354.1
HOLE LOGGED BY: Cuttings Description by Mike Stoner, Naval Air Warfare Station — DEPTH TO WATER (DATE): See Notes
GEOPHYSICAL LOGS: Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foor Lateral, Temperature — LAB ANALYSIS: Yes, See Notes
TDS: See Notes
OTHER LOGS: Drilling Time — REVIEWED BY: Dennis Watt, USBR

NOTES

Depth: 1190-1210'

REPORTING UNITS	CONSTITUENT	ANALYSES RESULTS
mg/L	Total Hardness (as CaCO3)	80.0
mg/L	Calcium (Ca)	4.8
mg/L	Magnesium (Mg)	16.5
mg/L	Sodium (Na)	188.4
mg/L	Potassium (K)	8.6
Cations	meq/L Value: 10.0	
mg/L	Total Alkalinity (AS CaCO3)	380.0
mg/L	Hydroxide (OH)	< 1.0
mg/L	Carbonate (CO3)	< 1.0
mg/L	Bicarbonate (HCO3)	463.6
mg/L*	Sulfate (SO4)	34.6
mg/L*	Chloride (Cl)	33.3
mg/L	Nitrate (as NO3)	1.7
mg/L	Fluoride (F) Temp. Depend.	3.3
Anions	meq/L Value: 9.5	
Std. Units	PH (Laboratory)	9.1
umho/cm**	Specific Conductance (E.C.)	950.0
mg/L***	Total Filterable Residue at 180C	481.4
Units	Apparent Color (Unfiltered)	5.0
TON	Odor Threshold at 60 C	2.0
NTU	Lab Turbidity	85.0
mg/L	MBAS	< 0.02

INORGANIC CHEMICALS

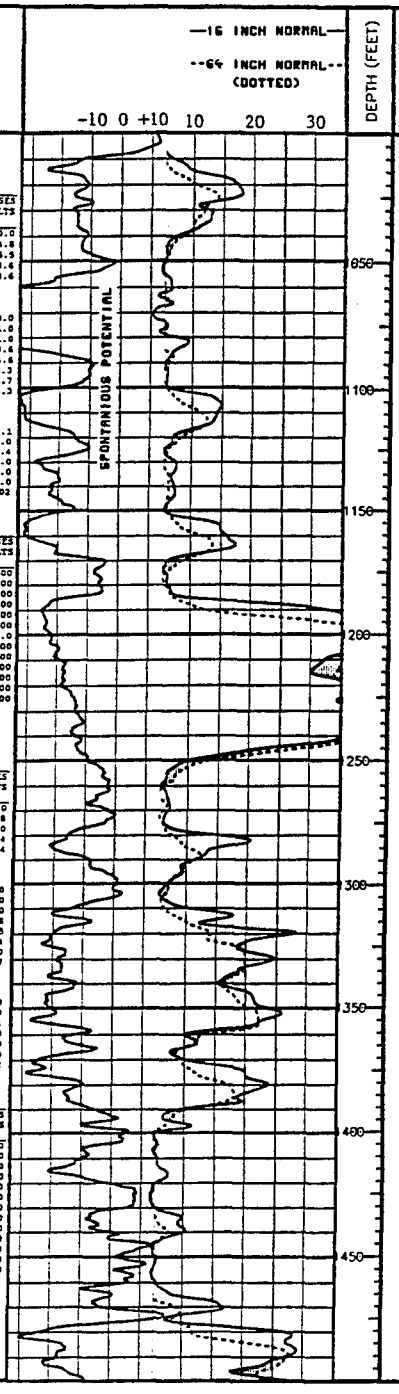
REPORTING UNITS	CONSTITUENT	ANALYSES RESULTS
ug/L	Aluminum (Al)	865.00
ug/L	Arsenic (As)	135.00
ug/L	Barium (Ba)	<100.00
ug/L	Cadmium (Cd)	< 1.00
ug/L	Chromium (Total Cr)	< 10.00
ug/L	Copper (Cu)	< 50.00
ug/L	Iron (Fe)	4535.0
ug/L	Lead (Pb)	6.00
ug/L	Manganese (Mn)	140.00
ug/L	Mercury (Hg)	< 1.00
ug/L	Selenium (Se)	< 5.00
ug/L	Silver (Ag)	< 10.00
ug/L	Zinc (Zn)	< 50.00

Depth: 1640-1660'

REPORTING UNITS	CONSTITUENT	ANALYSES RESULTS
mg/L	Total Hardness (as CaCO3)	78.0
mg/L	Calcium (Ca)	5.8
mg/L	Magnesium (Mg)	15.0
mg/L	Sodium (Na)	223.4
mg/L	Potassium (K)	7.4
Cations	meq/L Value: 11.4	
mg/L	Total Alkalinity (AS CaCO3)	440.8
mg/L	Hydroxide (OH)	< 1.0
mg/L	Carbonate (CO3)	< 1.0
mg/L	Bicarbonate (HCO3)	536.8
mg/L*	Sulfate (SO4)	37.5
mg/L*	Chloride (Cl)	29.4
mg/L	Nitrate (as NO3).	< 1.0
mg/L	Fluoride (F) Temp. Depend.	1.7
Anions	meq/L Value: 10.5	
Std. Units	PH (Laboratory)	8.9
umho/cm**	Specific Conductance (E.C.)	980.0
mg/L***	Total Filterable Residue at 180C	540.1
Units	Apparent Color (Unfiltered)	40.0
TON	Odor Threshold at 60 C	2.0
NTU	Lab Turbidity	140.0
mg/L	MBAS	< 0.02

INORGANIC CHEMICALS

REPORTING UNITS	CONSTITUENT	ANALYSES RESULTS
ug/L	Aluminum (Al)	1325.0
ug/L	Arsenic (As)	75.00
ug/L	Barium (Ba)	<100.00
ug/L	Cadmium (Cd)	< 1.00
ug/L	Chromium (Total Cr)	< 10.00
ug/L	Copper (Cu)	< 50.00
ug/L	Iron (Fe)	3935.0
ug/L	Lead (Pb)	< 5.00
ug/L	Manganese (Mn)	160.00
ug/L	Mercury (Hg)	< 1.00
ug/L	Selenium (Se)	< 5.00
ug/L	Silver (Ag)	< 10.00
ug/L	Zinc (Zn)	< 50.00



CONDENSED CUTTINGS DESCRIPTION

600-1700 **CLAY**
Gray-green clay.

890-1040 Some very fine sand.

1040-1050 Some fine to medium sand.

1080-1090 Some gravel.

1110-1190 Some medium sand.

1190-1270 Some fine to medium sand.

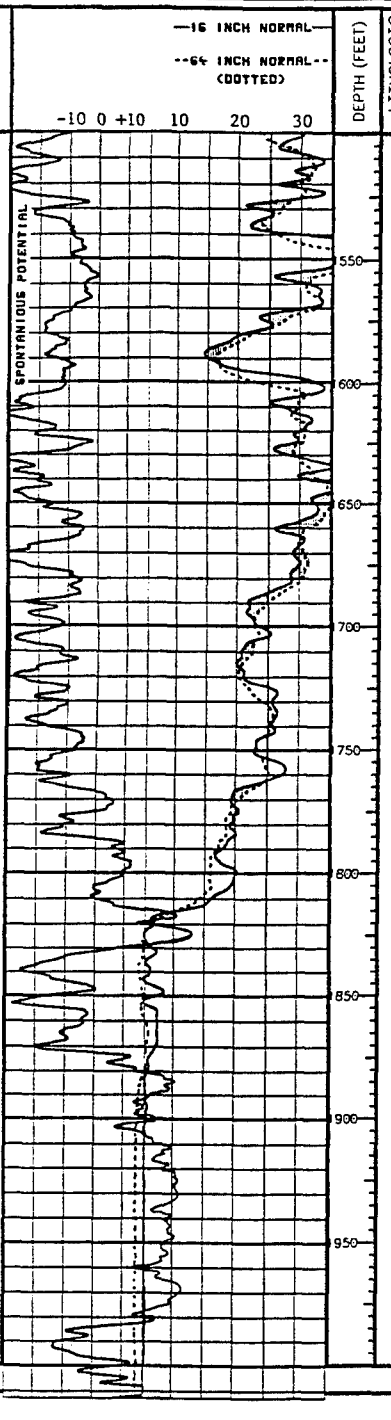
1280-1400 Some fine sand.

1400-1500 Some fine to medium sand.

PAGE OF | DRILL HOLE BR-6 [Page 3]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-6

FEATURE	Drill Hole Completed with Nested Piezometers	DRILLED DEPTH	2012 Ft.
PROJECT	Indian Wells Valley Groundwater Project	COMPLETED DEPTH	1660 Ft.
LOCATION	T.25 S., R. 38 E., Sec. 12m	STATE CA BEGUN	1-10-92
TYPE OF WELL	Observation	FINISHED	1-17-92
PURPOSE	Lithology, Groundwater Quality, Piezometeric Level, Hydraulic Conductivity	GROUND ELEVATION	2352.2
COORDINATES		TOP OF CASING ELEV.	2354.1
HOLE LOGGED BY	Cuttings Description by Mike Stoner, Naval Air Warfare Station	DEPTH TO WATER (DATE)	See Notes
GEOPHYSICAL LOGS	Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral Temperature	LAB ANALYSIS	Yes, See Notes
		TDS	See Notes
OTHER LOGS	Drilling Time	REVIEWED BY	Dennis Watt, USBR



CONDENSED CUTTINGS DESCRIPTION

600-1700 CLAY
Gray-green clay.

1500-1520 Some fine sand.

1520-1610 Some fine to medium sand.

1620-1640 Some fine sand.

1640-1700 Some fine to medium sand.

1700-1850 SAND
Gray-green, clayey fine to medium sand.

1850-1920 SAND
Gray-green medium sand with some silt and clay.

1870-1890 Missing samples.

1920-1980 SAND
Medium to coarse sand with some dark gray-green silty clay.

1980-2000 CLAY
Dark gray-green clay with a trace of fine sand.

PAGE OF | DRILL HOLE BR-6 [Page 4]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-10

FEATURE Drill Hole Completed with Nested Piezometers — DRILLED DEPTH 2005 Ft.
PROJECT Indian Wells Valley Groundwater Project — COMPLETED DEPTH 1950 Ft.
LOCATION T.24 S., R.38 E., Sec. 21J — STATE CA — BEGUN 8-24-92
TYPE OF WELL Observation — FINISHED 9-02-92
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION
COORDINATES — TOP OF CASING ELEV. 2561.4
HOLE LOGGED BY Cuttings Description by Mike Stoner, Naval Air Warfare Station — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Dual Induction, Natural Gamma Ray Spectrometry, Caliper — LAB ANALYSIS See Notes
Long Spaced Sonic Waveforms, Long Spaced Sonic, Temperature — TDS See Notes
OTHER LOGS Drilling Time — REVIEWED BY Dennis Watt, USBR

NOTES

DRILL SITE:
The well is about 0.1 mile southeast of the intersection of Hwy 395 and Ninemile Canyon Road

DRILLED BY:
Welch and Howell Drilling of El Centro CA.

DRILLING RIG:
Mac double (106' total height) direct rotary rig.

DRILLING METHOD:
Direct rotary with bentonite mud. 14 3/4 inch roller cone bit from 56 to 1010 feet. 12 1/4 roller cone bit from 1010 to total depth.

HOLE COMPLETION:
Installed three 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each. Screens are at the following depth intervals: 640'-660', 1180'-1200', 1560'-1580', and 1930'-1950'. Cement plugs set at the following depth intervals: 890'-910', 1310'-1330', and 1770'-1790'.

DEVELOPMENT:
Each piezometer was air-lifted at least 4 hours. Water samples for lab analysis were collected at the end of development.

DEPTH TO WATER:
All depths reported below were measured on September 30, 1992 from the top of the outer casing.

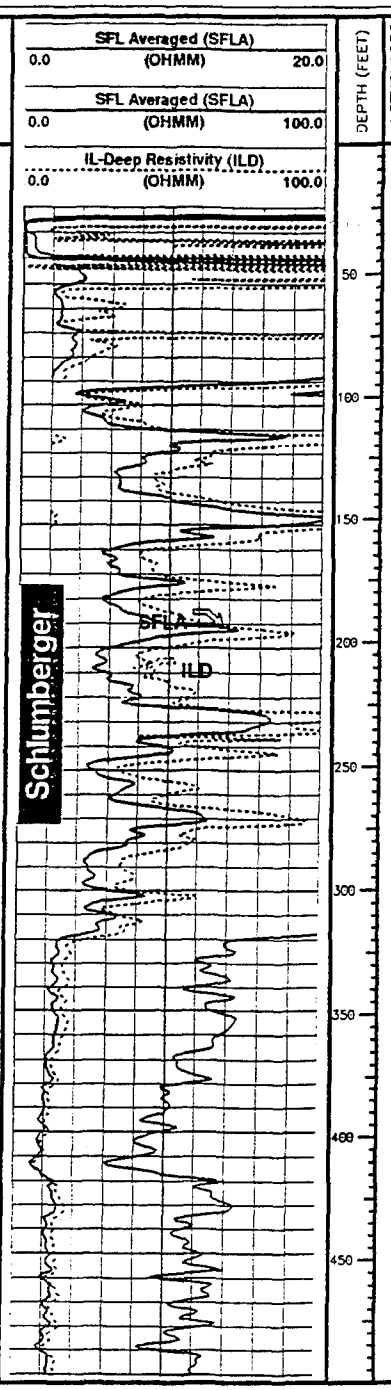
Screen Interval	Depth (Ft)
640'-660'	308.4
1180'-1200'	321.8
1560'-1580'	362.1
1930'-1950'	364.0

All depth to water measurements made during the project life are available in the Geohydrologic Appendix for this project.

SLUG TEST RESULTS:
Estimated transmissivity (T) (ft^2/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.

Piezometer	T
Shallow	.19
Shal/Med	.02*
Deep/Med	.14
Deep	.09

*Note - This is suspiciously low.



LITHOLOGIC LOG

CONDENSED CUTTINGS DESCRIPTION

The interpretation below is reduced from a description of samples collected every 10 feet from the drilling mud return.

GENERAL

The collected samples and drilling character indicate a non-cemented alluvial fill from land surface to total depth.

Depth intervals are feet below land surface.

0-40 Missing samples.

40-60 GRAVEL
Dark salt and pepper color with basalt.

80-680 SAND
Tan-gray medium to coarse sand.

80-120 Very coarse with gravel to 1/4 inch.

160-180 Coarse sand with gravel.

180-300 Medium sand with silt.

300-320 Fine to medium sand with some silt.

320-360 Silty.

360-380 Medium sand with silt.

380-400 Silt.

400-420 Silty medium sand.

420-460 Medium sand with silt.

460-520 Silty.

PAGE OF | DRILL HOLE BR-10 [Page 1]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-10

FEATURE Drill Hole Completed with Nested Piezometers — DRILLED DEPTH 2005 Ft.
PROJECT Indian Wells Valley Groundwater Project — COMPLETED DEPTH 1950 Ft.
LOCATION T.24 S., R.38 E., Sec. 21J — STATE CA — BEGUN 8-24-92
TYPE OF WELL Observation — FINISHED 9-02-92
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION
COORDINATES — TOP OF CASING ELEV. 2561.4
HOLE LOGGED BY Cuttings Description by Mike Stoner, Naval Air Warfare Station — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Dual Induction, Natural Gamma Ray Spectrometry, Caliper — LAB ANALYSIS See Notes
Long Spaced Sonic Waveforms, Long Spaced Sonic, Temperature — TDS See Notes
OTHER LOGS Drilling Time — REVIEWED BY Dennis Watt, USBR

NOTES

WATER QUALITY:
Water analysis by:

BC Laboratories
4100 Atlas Ct.
Bakersfield CA 93308

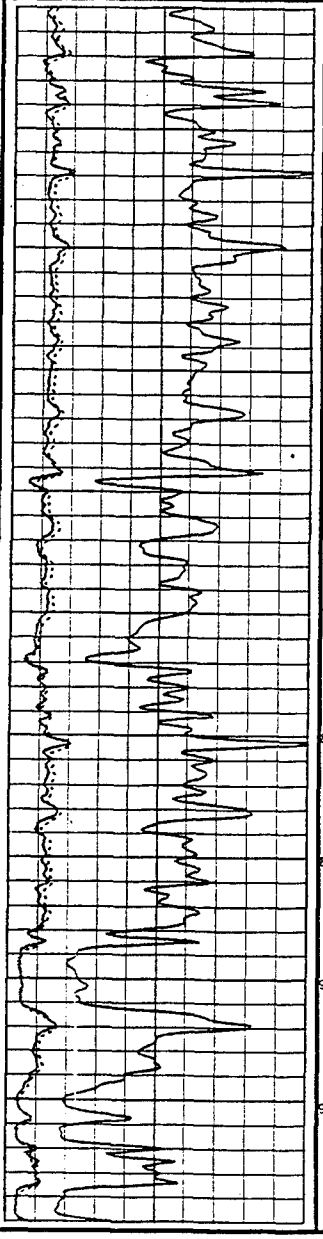
Depth: 640'-660'

(GENERAL CHEMISTRY)

Constituents		Results	Units
Calcium		21.	mg/L
Magnesium		19.0	mg/L
Sodium		295.	mg/L
Potassium		24.	mg/L
Total Cations		16.1	meq/L
Hydroxide	<	0.8	mg/L
Carbonate		40.2	mg/L
Bicarbonate		300.	mg/L
Chloride		176.	mg/L
Sulfate		225.	mg/L
Nitrate/Nitrite as NO3		2.7	mg/L
Fluoride		1.3	mg/L
Bromide		0.45	mg/L
Total Anions		16.0	meq/L
pH		8.7	pH Units
Electrical Conductivity @ 25 C		1570.	umhos/cm
Total Dissolved Solids @ 180 C		1000.	mg/L
Color		10.	Color Units
Odor		2.	Odor Units
Turbidity		31.	NT Units
MBAS		0.40	mg/L
Hardness as CaCO3		131.	mg/L
Alkalinity as CaCO3		313.	mg/L
Ammonia as NH3	<	0.02	mg/L
Nitrite Nitrogen	<	0.1	mg/L
Ortho-phosphate		0.36	mg/L

(METALS)

Constituents	Results	Units
Aluminum	2790.	ug/L
Antimony	None Detected	ug/L
Arsenic	16.	ug/L
Barium	None Detected	ug/L
Boron	4.9	mg/L
Cadmium	None Detected	ug/L
Chromium	None Detected	ug/L
Copper	None Detected	ug/L
Lead	None Detected	ug/L
Lithium	250.	ug/L
Manganese	285.	ug/L
Mercury	None Detected	ug/L
Selenium	2.7	ug/L
Si as SiO2	48.	mg/L
Silver	None Detected	ug/L
Strontium	399.	ug/L
Thallium	None Detected	ug/L
Zinc	None Detected	ug/L
Total Iron	3530.	ug/L



CONDENSED CUTTINGS DESCRIPTION

80-680 SAND
Tan-gray medium to coarse sand.

520-540 Silt with medium sand.

540-560 Silty medium sand.

560-580 Silty.

580-620 Some silt.

620-640 Fine to medium sand with silt.

640-680 Silty.

680-1000 CLAY
Light gray-green clay with some sand.

680-740 Tan-gray clay with medium sand.

740-780 Some fine to medium sand.

780-820 Some fine sand.

820-840 Tan-gray, lots of fine to medium sand.

840-860 Tan-gray fine sand with clay.

860-1000 Some fine to medium sand.

PAGE OF | DRILL HOLE BR-10 [Page 2]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-10

FEATURE: Drill Hole Completed with Nested Piezometers — DRILLED DEPTH: 2005 Ft.
PROJECT: Indian Wells Valley Groundwater Project — COMPLETED DEPTH: 1950 Ft.
LOCATION: T.24 S., R.38 E., Sec. 21J — STATE: CA — BEGUN: 8-24-92
TYPE OF WELL: Observation — FINISHED: 9-02-92
PURPOSE: Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION:
COORDINATES: — TOP OF CASING ELEV.: 2561.4
HOLE LOGGED BY: Cuttings Description by Mike Stoner, Naval Air Warfare Station — DEPTH TO WATER (DATE): See Notes
GEOPHYSICAL LOGS: Dual Induction, Natural Gamma Ray Spectromerry, Caliper — LAB ANALYSIS: See Notes
Long Spaced Sonic Waveforms, Long Spaced Sonic, Temperature — TDS: See Notes
OTHER LOGS: Drilling Time — REVIEWED BY: Dennis Watt, USBR

NOTES

Depth: 1180'-1200'

(GENERAL CHEMISTRY)

Constituents	Results	Units
Calcium	8.3	mg/L
Magnesium	2.7	mg/L
Sodium	200.	mg/L
Potassium	11.5	mg/L
Total Cations	9.63	meq/L
Hydroxide	< 0.8	mg/L
Carbonate	11.1	mg/L
Bicarbonate	60.0	mg/L
Chloride	139.	mg/L
Sulfate	193.	mg/L
Nitrate/Nitrite as NO3	1.8	mg/L
Fluoride	1.9	mg/L
Bromide	0.36	mg/L
Total Anions	9.42	meq/L
pH	8.7	pH Units
Electrical Conductivity @ 25 C	1040.	umhos/cm
Total Dissolved Solids @ 180 C	580.	mg/L
Color	20.	Color Units
Odor	4.	Odor Units
Turbidity	15.	NT Units
MBAS	0.72	mg/L
Hardness as CaCO3	31.8	mg/L
Alkalinity as CaCO3	67.7	mg/L
Ammonia as NH3	0.38	mg/L
Nitrite Nitrogen	< 0.1	mg/L
Ortho-phosphate	< 0.10	mg/L

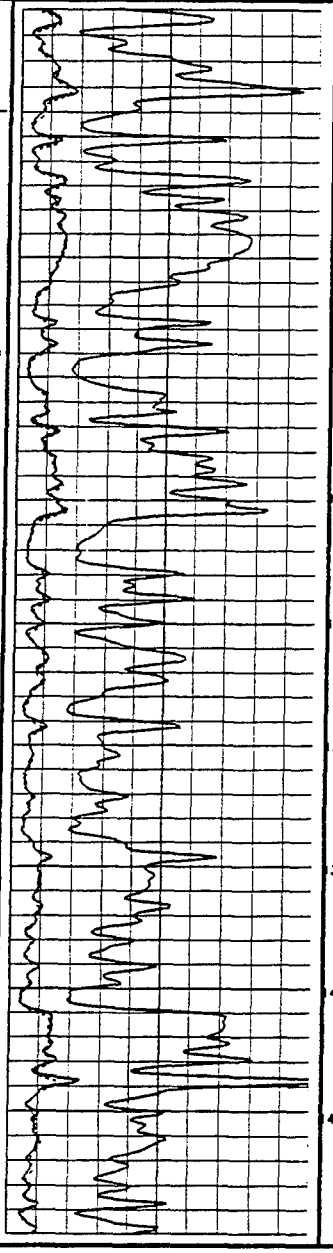
(METALS)

Constituents	Results	Units
Aluminum	742.	ug/L
Antimony	None Detected	ug/L
Arsenic	2.7	ug/L
Barium	None Detected	ug/L
Boron	1.3	mg/L
Cadmium	None Detected	ug/L
Chromium	None Detected	ug/L
Copper	None Detected	ug/L
Lead	None Detected	ug/L
Lithium	None Detected	ug/L
Manganese	69.	ug/L
Mercury	None Detected	ug/L
Selenium	2.4	ug/L
Si as SiO2	12.	mg/L
Silver	None Detected	ug/L
Strontium	84.	ug/L
Thallium	None Detected	ug/L
Zinc	None Detected	ug/L
Total Iron	1830.	ug/L

Depth: 1560'-1580'

(GENERAL CHEMISTRY)

Constituents	Results	Units
Calcium	47.	mg/L
Magnesium	105.	mg/L
Sodium	254.	mg/L
Potassium	32.	mg/L
Total Cations	22.8	meq/L
Hydroxide	< 0.8	mg/L
Carbonate	< 3.6	mg/L
Bicarbonate	1130.	mg/L
Chloride	49.5	mg/L
Sulfate	156.	mg/L
Nitrate/Nitrite as NO3	0.9	mg/L
Fluoride	0.56	mg/L
Bromide	0.12	mg/L
Total Anions	23.2	meq/L
pH	7.9	pH Units
Electrical Conductivity @ 25 C	1910.	umhos/cm
Total Dissolved Solids @ 180 C	1220.	mg/L
Color	30.	Color Units
Odor	4.	Odor Units
Turbidity	27.	NT Units
MBAS	0.66	mg/L
Hardness as CaCO3	550.	mg/L
Alkalinity as CaCO3	926.	mg/L
Ammonia as NH3	0.17	mg/L
Nitrite Nitrogen	< 0.1	mg/L
Ortho-phosphate	0.48	mg/L



DEPTH (FEET): 1050, 1100, 1150, 200, 250, 300, 350, 400, 450

LITHOLOGIC LOG

CONDENSED CUTTINGS DESCRIPTION

1000-1440 CLAY
Gray-green clay with medium sand.

1000-1020 Some fine to medium sand.

1020-1040 Some medium to coarse sand.

1100-1200 Clay with medium to coarse sand.

1200-1220 Medium to coarse sandy clay.

1240-1260 Some fine to medium sand.

1260-1280 Clay with fine to medium sand.

1280-1300 Trace of fine sand.

1400-1420 Clay with medium to coarse sand.

1420-1440 Trace of medium to coarse sand.

1440-1600 SAND
Medium to coarse, gray-green sand with a trace of clay.

1480-1500 Clay with medium to coarse sand.

PAGE OF | DRILL HOLE BR-10 [Page 3]

USBR Drill Hole Completion and Data Log
Monitoring Well BR-10

FEATURE: Drill Hole Completed with Nested Piezometers — DRILLED DEPTH: 2005 Ft.
PROJECT: Indian Wells Valley Groundwater Project — COMPLETED DEPTH: 1950 Ft.
LOCATION: T.24 S., R.38 E., Sec. 21J — STATE: CA — BEGUN: 8-24-92
TYPE OF WELL: Observation — FINISHED: 9-02-92
PURPOSE: Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION:
COORDINATES: — TOP OF CASING ELEV.: 2561.4
HOLE LOGGED BY: Cuttings Description by Mike Stoner, Naval Air Warfare Station — DEPTH TO WATER (DATE): See Notes
GEOPHYSICAL LOGS: Dual Induction, Natural Gamma Ray Spectrometry, Caliper — LAB ANALYSIS: See Notes
Long Spaced Sonic Waveforms, Long Spaced Sonic, Temperature — TDS: See Notes
OTHER LOGS: Drilling Time — REVIEWED BY: Dennis Watt, USBR

NOTES

(METALS)

Constituents	Results	Units
Aluminum	None Detected	µg/L
Antimony	None Detected	µg/L
Arsenic	7.8	µg/L
Barium	None Detected	µg/L
Boron	1.1	mg/L
Cadmium	None Detected	µg/L
Chromium	None Detected	µg/L
Copper	None Detected	µg/L
Lead	None Detected	µg/L
Lithium	250.	µg/L
Manganese	95.	µg/L
Mercury	None Detected	µg/L
Selenium	None Detected	µg/L
Si as SiO2	81.	mg/L
Silver	None Detected	µg/L
Strontium	678.	µg/L
Thallium	None Detected	µg/L
Zinc	None Detected	µg/L
Total Iron	6910.	µg/L

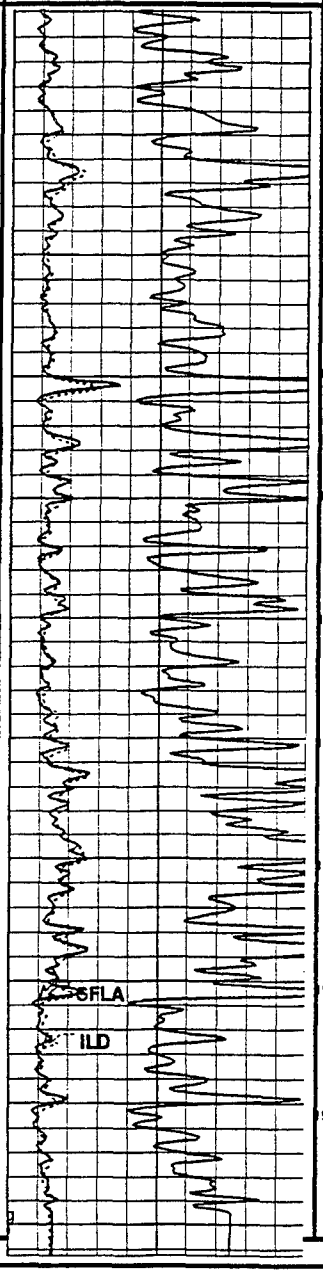
Depth: 1930'-1950'

(GENERAL CHEMISTRY)

Constituents	Results	Units
Calcium	30.	mg/L
Magnesium	121.	mg/L
Sodium	320.	mg/L
Potassium	44.	mg/L
Total Cations	26.5	meq/L
Hydroxide	< 0.8	mg/L
Carbonate	< 2.6	mg/L
Bicarbonate	1280.	mg/L
Chloride	58.2	mg/L
Sulfate	171.	mg/L
Nitrate/Nitrite as NO3	0.9	mg/L
Fluoride	0.8	mg/L
Bromide	0.18	mg/L
Total Anions	26.2	meq/L
pH	8.1	pH Units
Electrical Conductivity @ 25 C	2400.	umhos/cm
Total Dissolved Solids @ 180 C	1330.	mg/L
Color	30.	Color Units
Odor	4.	Odor Units
Turbidity	27.	NT Units
MBAS	0.96	mg/L
Hardness as CaCO3	576.	mg/L
Alkalinity as CaCO3	1050.	mg/L
Ammonia as NH3	0.05	mg/L
Nitrite Nitrogen	< 0.1	mg/L
Ortho-phosphate	0.39	mg/L

(METALS)

Constituents	Results	Units
Aluminum	None Detected	µg/L
Antimony	None Detected	µg/L
Arsenic	9.8	µg/L
Barium	None Detected	µg/L
Boron	1.6	mg/L
Cadmium	None Detected	µg/L
Chromium	None Detected	µg/L
Copper	None Detected	µg/L
Lead	None Detected	µg/L
Lithium	180.	µg/L
Manganese	286.	µg/L
Mercury	None Detected	µg/L
Selenium	None Detected	µg/L
Si as SiO2	59.	mg/L
Silver	None Detected	µg/L
Strontium	554.	µg/L
Thallium	None Detected	µg/L
Zinc	None Detected	µg/L
Total Iron	5820.	µg/L



DEPTH (FEET) | LITHOLOGIC LOG

CONDENSED CUTTINGS DESCRIPTION

1440-1600 SAND
Medium to coarse, gray-green sand with a trace of clay.

1600-1640 CLAY
Gray-green clay with medium sand.

1600-1620 With medium to coarse sand.

1640-2000 SAND
Fine to medium, gray-green sand with a trace of clay.

1760-1780 Silty clay with medium sand.

1800-1840 Medium sand a with trace of clay.

1860-1940 Medium sand with clay.

1960-2005 Medium to coarse sand with a trace of clay.

PAGE OF | DRILL HOLE BR-10 [Page 4]

USBR Drill Hole Completion and Data Log
Monitoring Well NR-1

FEATURE Drill Hole Completed with Nested Piezometers
PROJECT Indian Wells Valley Groundwater Project (Water District Well)
LOCATION T.25 S., R.38 E., Sec. 25j
TYPE OF WELL Observation
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity
COORDINATES
HOLE LOGGED BY Cuttings Description by Dipti Barari, N. Amer. Chem. Co., Trona CA
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature
OTHER LOGS Drilling Time

DRILLED DEPTH 2012 Ft.
COMPLETED DEPTH 2001 Ft.
STATE CA BEGUN 1-07-91
FINISHED 2-06-91
GROUND ELEVATION 2275.7
TOP OF CASING ELEV. 2278.6
DEPTH TO WATER (DATE) See Notes
LAB ANALYSIS Yes, See Notes
TDS See Notes
REVIEWED BY Dennis Watt, USBR

NOTES

DRILL SITE:
The well is located in the extreme northeast corner of the Indian Wells Valley Water District's Neal Ranch property.

DRILLED BY:
Southern California Drilling Company of Lancaster CA.

DRILLING RIG:
Custom built, small oil-field rotary rig.

DRILLING METHOD:
Direct rotary with bentonite mud. 12 1/4 inch roller cone bit from surface to total depth.

HOLE COMPLETION:
Installed three 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each. Screens are at the following depth intervals: 250'-270', 1130'-1150', 1960'-1980'. Twenty feet of 2" pipe below each screen. Benseal (bentonite) plugs set at the following depth intervals: 220'-240', 290'-300', 1100'-1120', 1170'-1190', 1920-1940.

DEVELOPMENT:
Each piezometer was air-lifted for about 12 hours and discharged an estimated 10 gallons per minute. Water samples for lab analysis were collected at the end of development.

DEPTH TO WATER:
All depths reported below were measured on December 12, 1991 from the top of the outer casing.

Screen Interval	Depth (Ft)
250'-270'	94.9
1130'-1150'	76.8
1960'-1980'	101.0

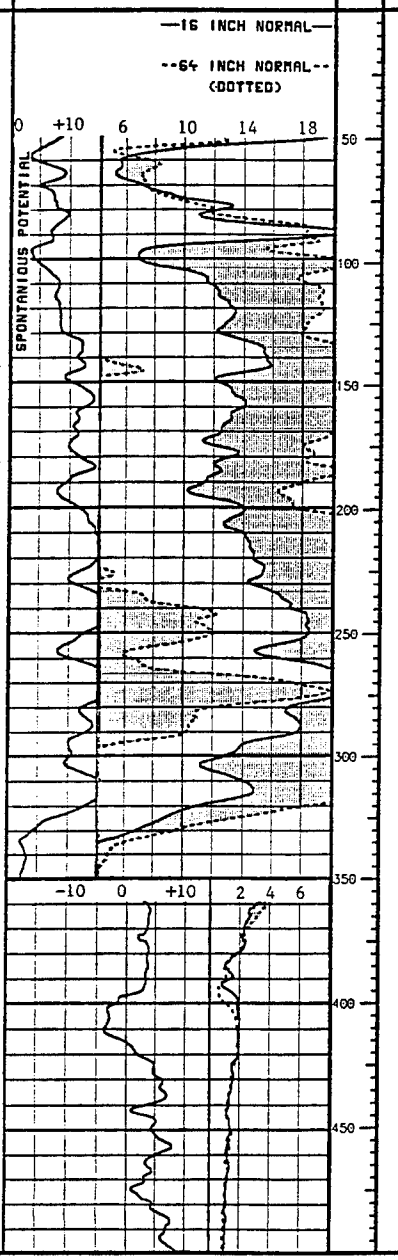
All depth to water measurements are available in an attachment to the Geohydrologic Appendix for this project.

SLUG TEST RESULTS:
Estimated transmissivity (ft^2/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.

Piezometer	T
Shallow	.004*
Medium	?
Deep	.05

*The shallow screen was probably damaged during installation by downward slumping of the shallow seal.

BARBOUR CORP
WELL SURVEYING
805-482-4988
ELECTRIC LOG



CONDENSED CUTTINGS DESCRIPTION

The interpretation below is reduced from a description of samples collected every 10 feet from the drilling mud return. The grain size descriptors used in the description of the samples and in the log below are from the scale proposed by Wentworth.

GENERAL

The collected samples and drilling character indicate a non-cememted, alluvial fill from land surface to total depth. Fine gravel was the maximum grain size recovered.

Intervals are feet below land surface.

0-340 SAND
Medium to coarse sand.

10-30 Some gravel.

50-60 Fine to medium.

60-70 Few gravel.

80-90 Some gravel.

100-100 Few gravel.

130-170 Few gravel.

170-180 Fine to medium with some clay.

180-240 Some gravel.
200-210 Fine to medium.
210-220 Mostly gravel.
230-240 Fine to medium.

260-270 Some gravel.

280-300 Mostly gravel.

310-320 Fine to medium.

320-340 Mostly gravel.

340-610 CLAY
Blue-green clay. Occasional silt and sand noted in the sample descriptions is probably from thin layers of silt and fine sand.

370-450 Some fossils.

450-470 Blue to blue-gray.

480-510 Gray.
490-510 Siltstone pieces.

PAGE OF | DRILL HOLE NR-1 [Page 1]

USBR Drill Hole Completion and Data Log
Monitoring Well NR-1

FEATURE Drill Hole Completed with Nested Piezometers — DRILLED DEPTH 2012 Ft.
PROJECT Indian Wells Valley Groundwater Project (Water District Well) — COMPLETED DEPTH 2001 Ft.
LOCATION T.25 S., R.38 E., Sec. 25j — STATE CA — BEGUN 1-07-91
TYPE OF WELL Observation — FINISHED 2-06-91
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION 2275.7
COORDINATES — TOP OF CASING ELEV. 2278.6
HOLE LOGGED BY Cuttings Description by Dipti Barari, N. Amer. Chem. Co., Trona CA — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS Yes, See Notes
TDS See Notes
OTHER LOGS Drilling Time — REVIEWED BY Dennis Watt, USBR

NOTES

WATER QUALITY:
Water analysis by:

Clinical Labs
1595 North "D" Street
San Bernardino CA 92405

Depth: 270-290'

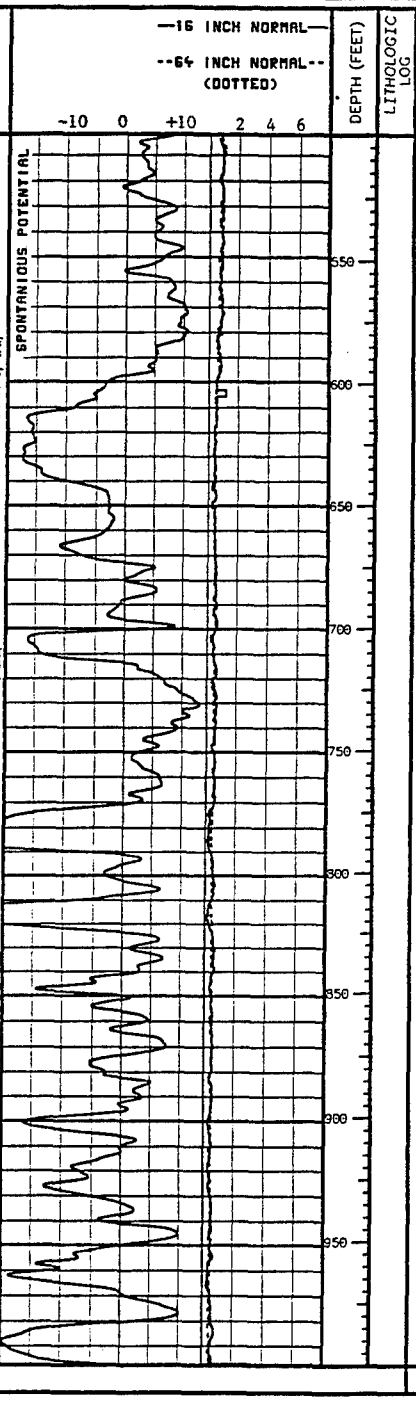
REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED UG/L	ANALYSES RESULTS
mg/L	Total Hardness (as CaCO3)	1030.0
mg/L	Calcium (Ca)	221.1
mg/L	Magnesium (Mg)	116.2
mg/L	Sodium (NA)	456.8
mg/L	Potassium (K)	5.6
Total Cations	Meq/L Value: 40.6	
mg/L	Total Alkalinity (AS CaCO3)	370.0
mg/L	Hydroxide (OH)	< 1.0
mg/L	Carbonate (CO3)	< 1.0
mg/L	Bicarbonate (HCO3)	451.4
mg/L*	Sulfate (SO4)	1094.7
mg/L*	Chloride (Cl)	290.7
mg/L	Nitrate (as NO3)	260.3
mg/L	Fluoride (F) Temp. Depend.	2.4
Total Anions	Meq/L Value: 42.7	
Sd. Units	PH (Laboratory)	7.9
umho/cm**	Specific Conductance (E.C.)	3880.0
mg/L***	Total Filterable Residue at 180c	2405.6
Units	Apparent Color (Unfiltered)	< 3.0
TON	Odor Threshold at 60 C	1.0
NTU	Lab Turbidity	1.3
mg/L	MBAS	0.45

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED UG/L	ANALYSES RESULTS
ug/L	Arsenic (As)	< 10
ug/L	Barium (Ba)	< 100
ug/L	Cadmium (Cd)	< 1
ug/L	Chromium (Total Cr)	< 10
ug/L	Copper (Cu)	< 50
ug/L	Iron (Fe)	100
ug/L	Lead (Pb)	< 5
ug/L	Manganese (Mn)	80
ug/L	Mercury (Hg)	< 1
ug/L	Selenium (Se)	170
ug/L	Silver (Ag)	< 10
ug/L	Zinc (Zn)	< 50
ug/L	Aluminum	180

Depth: 1130-1150'

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED UG/L	ANALYSES RESULTS
mg/L	Total Hardness (as CaCO3)	310.0
mg/L	Calcium (Ca)	32.0
mg/L	Magnesium (Mg)	55.9
mg/L	Sodium (NA)	1240.0
mg/L	Potassium (K)	14.6
Total Cations	Meq/L Value: 40.5	
mg/L	Total Alkalinity (AS CaCO3)	2184.0
mg/L	Hydroxide (OH)	< 1.0
mg/L	Carbonate (CO3)	< 1.0
mg/L	Bicarbonate (HCO3)	2664.5
mg/L*	Sulfate (SO4)	125.4
mg/L*	Chloride (Cl)	245.0
mg/L	Nitrate (as NO3)	33.4
mg/L	Fluoride (F) Temp. Depend.	2.4
Total Anions	Meq/L Value: 53.9	
Sd. Units	PH (Laboratory)	9.9
umho/cm**	Specific Conductance (E.C.)	6000
mg/L***	Total Filterable Residue at 180c	3660.0
Units	Apparent Color (Unfiltered)	70
TON	Odor Threshold at 60 C	4.0
NTU	Lab Turbidity	166.0
mg/L	MBAS	0.45

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED UG/L	ANALYSES RESULTS
ug/L	Arsenic (As)	28
ug/L	Barium (Ba)	< 100
ug/L	Cadmium (Cd)	< 1
ug/L	Chromium (Total Cr)	< 10
ug/L	Copper (Cu)	< 50
ug/L	Iron (Fe)	730
ug/L	Lead (Pb)	< 5
ug/L	Manganese (Mn)	40
ug/L	Mercury (Hg)	< 1
ug/L	Selenium (Se)	40
ug/L	Silver (Ag)	< 10
ug/L	Zinc (Zn)	< 50
ug/L	Aluminum	240



CONDENSED CUTTINGS DESCRIPTION

340-610 CLAY
Blue-green clay. Occasional silt and sand noted in the sample descriptions is probably from thin layers of silt and fine sand.

510-580 Blue.
560-580 Some gravel.

590-610 Green-black to gray-black with sand, silt, and some fine gravel.

610-800 MUD
Green, black, and gray mud.

660-690 Green, black, and gray-blue clay.

700-730 Tuffaceous? material.

730-740 Clay.

740-760 Some sand and silt.

760-770 Some silt and clay.

770-780 Blue clay.

780-800 Some silt.

800-1250 CLAY
Black and gray-black clay. Occasional silt and sand noted in the sample descriptions is probably from thin layers of silt and fine sand.

820-830 Some silt and siltstone.

830-840 Black-gray mud with some coarse sand.

900-910 Green-black with some siltstone.

910-940 Silty.

930-980 Some fossils.

980-990 Gray-black mud.

PAGE OF | DRILL HOLE NR-1 [Page 2]

USBR Drill Hole Completion and Data Log
Monitoring Well NR-1

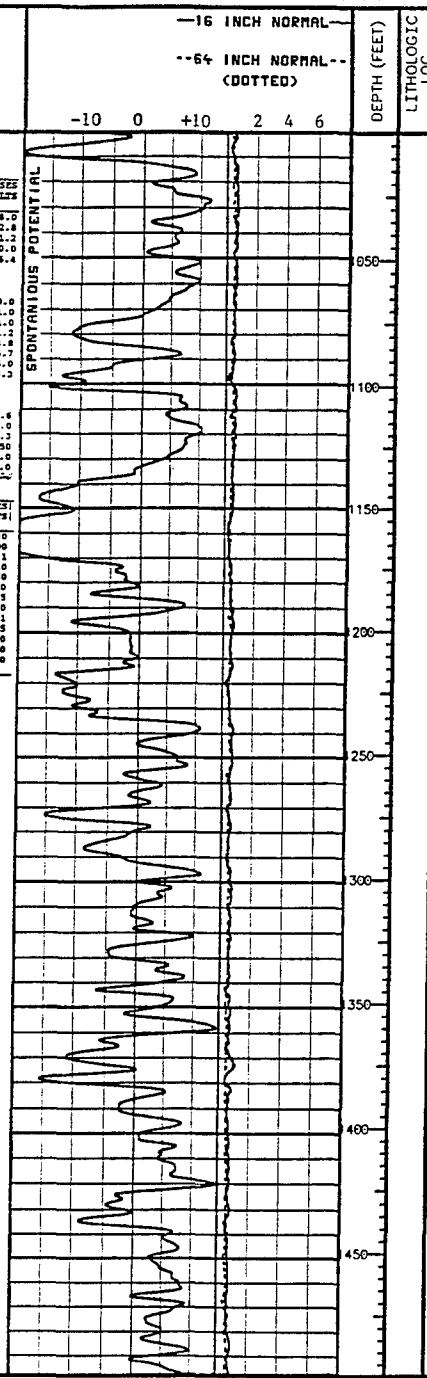
FEATURE Drill Hole Completed with Nested Piezometers — DRILLED DEPTH 2012 Ft.
PROJECT Indian Wells Valley Groundwater Project (Water District Well) — COMPLETED DEPTH 2001 Ft.
LOCATION T.25 S., R.38 E., Sec. 25J — STATE CA — BEGUN 1-07-91
TYPE OF WELL Observation — FINISHED 2-06-91
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION 2275.7
COORDINATES — TOP OF CASING ELEV. 2278.6
HOLE LOGGED BY Cuttings Description by Dipti Barari, N. Amer. Chem. Co., Trona CA — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS Yes, See Notes
TDS See Notes
OTHER LOGS Drilling Time — REVIEWED BY Dennis Watt, USBR

NOTES

Depth: 1960-1980'

REPORTING UNITS	CONSTITUENT — ALL CONSTITUENTS REPORTED uG/L	ANALYSES RESULTS
mg/L	Total Hardness (as CaCO3)	78.0
mg/L	Calcium (Ca)	12.8
mg/L	Magnesium (Mg)	11.2
mg/L	Sodium (Na)	1340.0
mg/L	Potassium (K)	6.4
Total Cations	Meq/L Value: 60.0	
mg/L	Total Alkalinity (AS CaCO3)	2460.0
mg/L	Hydroxide (OH)	< 1.0
mg/L	Carbonate (CO3)	< 1.0
mg/L	Bicarbonate (HCO3)	3001.2
mg/L*	Sulfate (SO4)	304.8
mg/L*	Chloride (Cl)	246.7
mg/L	Nitrate (as NO3)	35.0
mg/L	Fluoride (F) Temp. Depend.	3.3
Total Anions	Meq/L Value: 63.2	
Std. Units	PH (Laboratory)	8.6
umho/cm**	Specific Conductance (E.C.)	5330.0
mg/L***	Total Filterable Residue at 180C	3251.3
Units	Apparent Color (Unfiltered)	50
TON	Odor Threshold at 60 C	2.0
NTU	Lab Turbidity	32.0
mg/L	MBAS	Calc.

REPORTING UNITS	CONSTITUENT — ALL CONSTITUENTS REPORTED uG/L	ANALYSES RESULTS
ug/L	Arsenic (As)	130
ug/L	Barium (Ba)	100
ug/L	Cadmium (Cd)	< 1
ug/L	Chromium (Total Cr)	< 10
ug/L	Copper (Cu)	< 50
ug/L	Iron (Fe)	1150
ug/L	Lead (Pb)	< 5
ug/L	Manganese (Mn)	30
ug/L	Mercury (Hg)	< 1
ug/L	Selenium (Se)	15
ug/L	Silver (Ag)	< 10
ug/L	Zinc (Zn)	< 50
ug/L	Aluminum	1060



CONDENSED CUTTINGS DESCRIPTION

800-1250 CLAY
Black and gray-black clay. Occasional silt and sand noted in the sample descriptions is probably from thin layers of silt and fine sand.

1080-1130 Green clay.

1250-1400 MUD
Black and gray mud. Occasional silt and sand noted in the sample descriptions is probably from thin layers of silt and fine sand.

1270-1280 Some salt.

1310-1320 Black clay.

1400-1610 CLAY
Black and gray clay. Occasional silt and sand noted in the sample descriptions is probably from thin layers of silt and fine sand.

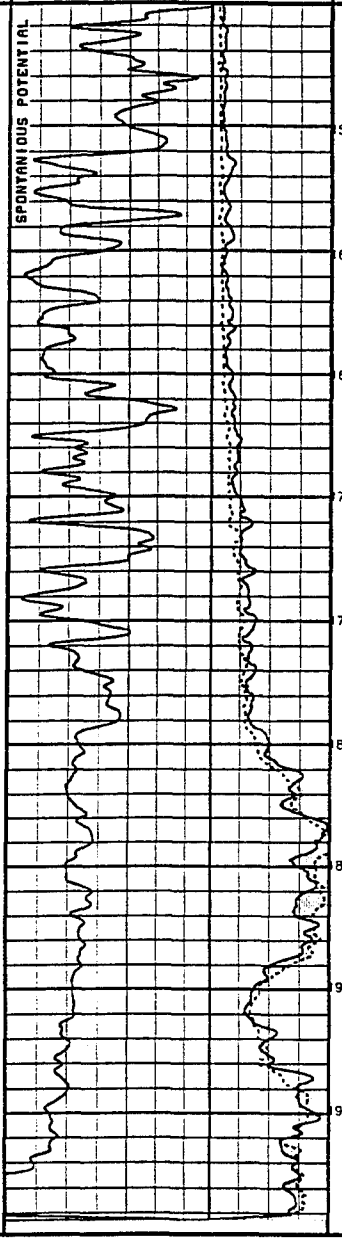
1400-1510 Black.
1400-1450 Some silt.

PAGE OF | DRILL HOLE NR-1 [Page 3]

USBR Drill Hole Completion and Data Log
Monitoring Well NR-1

FEATURE Drill Hole Completed with Nested Piezometers — DRILLED DEPTH 2012 Ft.
PROJECT Indian Wells Valley Groundwater Project (Water District Well) — COMPLETED DEPTH 2001 Ft.
LOCATION T.25 S., R.38 E., Sec. 25j — STATE CA — BEGUN 1-07-91
TYPE OF WELL Observation — FINISHED 2-06-91
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION 2275.7
COORDINATES — TOP OF CASING ELEV. 2278.6
HOLE LOGGED BY Cuttings Description by Dipti Barari, N. Amer. Chem. Co., Trona CA — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS Yes, See Notes
TDS See Notes
OTHER LOGS Drilling Time — REVIEWED BY Dennis Watt, USBR

NOTES



CONDENSED CUTTINGS DESCRIPTION

1400-1610 CLAY
Black and gray clay. Occasional silt and sand noted in the sample descriptions is probably from thin layers of silt and fine sand.

1510-1560 Gray black.
1510-1520 Gray mud with silt.

1560-1610 Black.
1560-1600 Some sand.

1610-1680 MUD
Black and gray mud.

1610-1620 Siltstone pieces.

1640-1680 Siltstone pieces.

1680-1820 CLAY
Gray clay with siltstone pieces.

1690-1700 Green.

1720-1760 With sand and silt.

1770-1780 Siltstone pieces.

1790-1810 With sand and mudstone.

1820-2012 SAND
Medium sand.

1820-1840 Coarse.

PAGE OF | DRILL HOLE NR-1 [Page 4]

USBR Drill Hole Completion and Data Log
Monitoring Well NR-2

FEATURE Drill Hole Completed with Nested Piezometers — DRILLED DEPTH 1994 Ft.
PROJECT Indian Wells Valley Groundwater Project (Water District Well) — COMPLETED DEPTH 1950 Ft.
LOCATION T. 25 S., R. 38 E., Sec. 36g — STATE CA — BEGUN 2-04-91
TYPE OF WELL Observation — FINISHED 2-15-91
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION 2314.7
COORDINATES — TOP OF CASING ELEV. 2317.7
HOLE LOGGED BY Cutting Description by Dipti Barari, N. Amer, Chem., Co., Trona CA — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS Yes, See Notes
TDS See Notes
OTHER LOGS Drilling Time — REVIEWED BY Dennis Watt, USBR

NOTES

DRILL SITE:
The well is located in the southwest corner of the southwestern block of the Indian Wells Valley Water District's Neal Ranch property.

DRILLED BY:
Southern California Drilling Company of Lancaster CA.

DRILLING RIG:
Custom built small oil-field rotary rig.

DRILLING METHOD:
Direct rotary with bentonite mud. 12 1/4 inch roller cone bit from surface to total depth.

HOLE COMPLETION:
Installed three 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each. Screens are at the following depth intervals: 330'-350', 1540'-1560', 1910'-1930'. Twenty feet of 2" pipe below each screen. Benseal (bentonite) plugs set at the following depth intervals: 250'-270', 450'-470', 1480'-1500', 1620'-1640'.

DEVELOPMENT:
Each piezometer was air-lifted for about 12 hours and discharged an estimated 10 gallons per minute.

DEPTH TO WATER:
All depths reported below were measured on October 22, 1991 from the top of the outer casing.

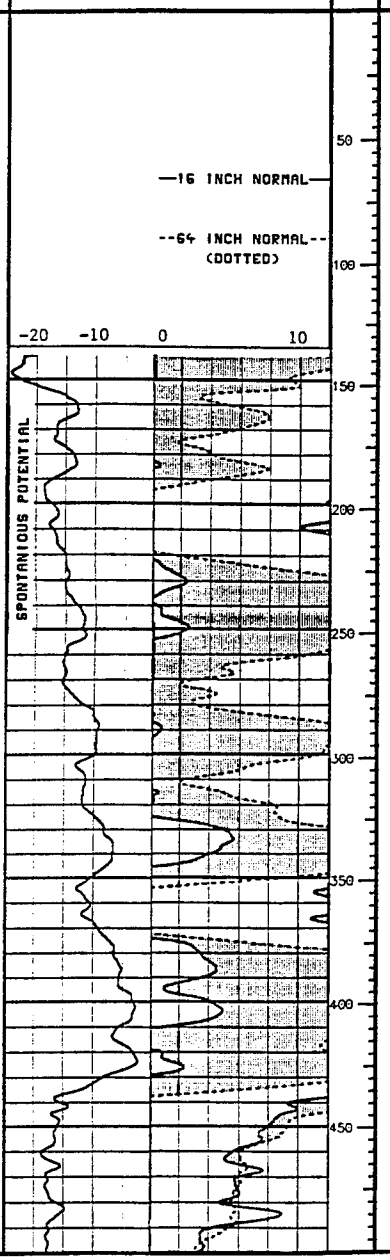
Screen Interval	Depth (Ft)
330'-350'	133.1
1540'-1560'	140.3
1910'-1930'	140.0

All depth to water measurements are available in an attachment to the Geohydrologic Appendix for this project.

SLUG TEST RESULTS:
Estimated transmissivity (ft2/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.

Piezometer	T
Shallow	.48
Medium	.14
Deep	.12

BARBOUR CORP
WELL SURVEYING
805-482-4988
ELECTRIC LOG



LITHOLOGIC LOG

CONDENSED CUTTINGS DESCRIPTION

The interpretation below is reduced from a description of samples collected every 10 feet from the drilling mud return.

GENERAL

The collected samples and drilling character indicate a non-cemented alluvial fill from land surface to total depth.

Depth intervals are feet below land surface.

0-440 SAND
Fine to coarse with scattered fine gravel.

- 90-100 Some fine gravel.
- 100-110 Silty.
- 140-170 Silty.
- 220-250 Very coarse.
- 300-310 Silty.
- 350-370 Blue clay with sand and gravel.
- 420-440 Black silty fine to coarse sand.

440-1480 CLAY
Blue, blue green, blue gray, green, and gray clay.

- 440-460 With sand and some mudstone pieces.
- 470-490 Silty.

PAGE OF | DRILL HOLE NR-2 [Page 1]

USBR Drill Hole Completion and Data Log
Monitoring Well NR-2

FEATURE Drill Hole Completed with Nested Piezometers — DRILLED DEPTH 1994 Ft.
PROJECT Indian Wells Valley Groundwater Project (Water District Well) — COMPLETED DEPTH 1950 Ft.
LOCATION T. 25 S., R. 38 E., Sec. 36g — STATE CA — BEGUN 2-04-91
TYPE OF WELL Observation — FINISHED 2-15-91
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION 2314.7
COORDINATES — TOP OF CASING ELEV. 2317.7
HOLE LOGGED BY Cutting Description by Dipti Barari, N. Amer, Chem., Co., Trona CA — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral. Temperature — LAB ANALYSIS Yes, See Notes — TDS See Notes
OTHER LOGS Drilling Time — REVIEWED BY Dennis Watt, USBR

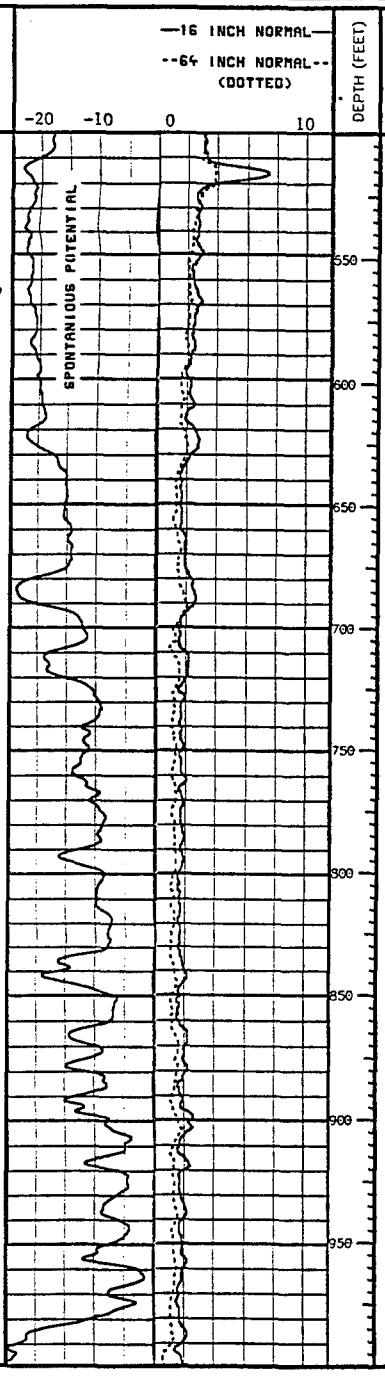
NOTES

WATER QUALITY:
Water analysis by:

Clinical Labs
1595 North "D" Street
San Bernardino CA 92405

DESCRIPTION OF SAMPLING POINT: NEAL RANCH #2 330-350
DATE/TIME COLLECTED: 2/26/91 0900

	RESULTS	MCL
TOTAL HARDNESS	241.2 mg/L	
CALCIUM HARDNESS	136.8 mg/L	
CALCIUM	54.8 mg/L	
MAGNESIUM	29.4 mg/L	
SODIUM	201.4 mg/L	
POTASSIUM	6.2 mg/L	
TOTAL ALKALINITY	295.6 mg/L	
HYDROXIDE	< 1.0 mg/L	
CARBONATE	< 1.0 mg/L	
BICARBONATE	360.6 mg/L	
SULFATE	223.8 mg/L	
CHLORIDE	85.0 mg/L	
NITRATE	25.6 mg/L	45
FLUORIDE	0.8 mg/L	
TOTAL ANIONS	13.61 mEq/L	
TOTAL CATIONS	13.73 mEq/L	
RPD ANIONS/CATIONS	0.60 PERCENT	
pH	8.3 STD UNITS	
E.C.	1370.0 umho/cm	
TDS	808.3 mg/L	
MBAS	< 0.02 mg/L	
MANGANESE	50 ug/L	50
COPPER	< 50 ug/L	1000
IRON	< 100 ug/L	300
ZINC	< 50 ug/L	5000
BARIUM	< 100 ug/L	1000
CHROMIUM	< 10 ug/L	50
CADMIUM	< 1 ug/L	10
LEAD	12 ug/L	50
ALUMINUM	< 100 ug/L	1000
MERCURY	< 1 ug/L	1
ARSENIC	< 10 ug/L	50
SELENIUM	10 ug/L	100
SILVER	< 10 ug/L	50
COLOR	< 3	
ODOR	1	
TURBIDITY	0.5 NTU	



CONDENSED CUTTINGS DESCRIPTION

440-1480 CLAY
Blue, blue green, blue gray, green, and gray clay.

510-530 Silty.

640-650 Gray mud.

650-680 Gray clay with siltstone chips and small fossils.

690-710 Small fossils.

720-730 Silty with small fossils.

750-770 Some sand.

790-800 Some fossils.

800-840 Sandy with few gravels.

PAGE OF | DRILL HOLE NR-2 [Page 2]

USBR Drill Hole Completion and Data Log
Monitoring Well NR-2

FEATURE Drill Hole Completed with Nested Piezometers — DRILLED DEPTH 1994 Ft.
PROJECT Indian Wells Valley Groundwater Project (Water District Well) — COMPLETED DEPTH 1950 Ft.
LOCATION T. 25 S., R. 38 E., Sec. 36g — STATE CA — BEGUN 2-04-91
TYPE OF WELL Observation — FINISHED 2-15-91
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION 2314.7
COORDINATES — TOP OF CASING ELEV. 2317.7
HOLE LOGGED BY Cutting Description by Dipti Barari, N. Amer. Chem., Co., Trona CA — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS Yes, See Notes — TDS See Notes
OTHER LOGS Drilling Time — REVIEWED BY Dennis Watt, USBR

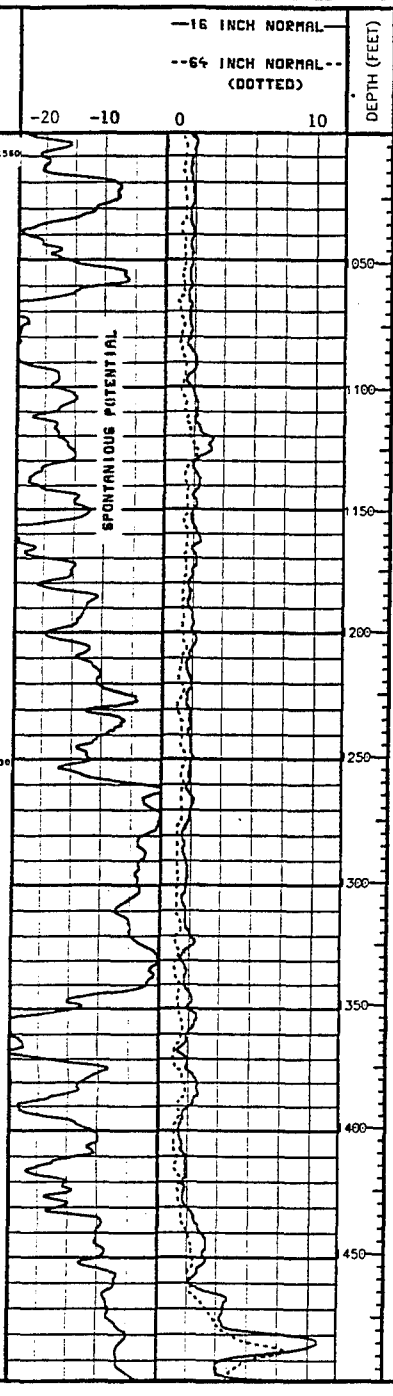
NOTES

DESCRIPTION OF SAMPLING POINT: NEAL RANCH #2 1540-1560
DATE/TIME COLLECTED: 2/26/91 0800

	RESULTS	MCL
TOTAL HARDNESS	457.2 mg/L	
CALCIUM HARDNESS	285.2 mg/L	
CALCIUM	114.2 mg/L	
MAGNESIUM	41.6 mg/L	
SODIUM	272.3 mg/L	
POTASSIUM	4.5 mg/L	
TOTAL ALKALINITY	310.0 mg/L	
HYDROXIDE	< 1.0 mg/L	
CARBONATE	< 1.0 mg/L	
BICARBONATE	378.2 mg/L	
SULFATE	467.7 mg/L	
CHLORIDE	159.9 mg/L	
NITRATE	107.1 mg/L	45
FLUORIDE	1.1 mg/L	
TOTAL ANIONS	22.23 mEq/L	
TOTAL CATIONS	21.09 mEq/L	
RPD AMIONS/CATIONS	3.55 PERCENT	
pH	8.0 STD UNITS	
E.C.	2240.0 umho/cm	
TDS	1366.8 mg/L	
MBAS	< 0.02 mg/L	
MANGANESE	< 30 ug/L	50
COPPER	< 50 ug/l	1000
IRON	< 100 ug/L	300
ZINC	< 50 ug/L	5000
BARIUM	< 200 ug/L	1000
CHROMIUM	< 10 ug/L	50
CADMIUM	< 1 ug/L	10
LEAD	< 5 ug/l	50
ALUMINUM	< 100 ug/L	1000
MERCURY	< 1 ug/l	2
ARSENIC	12 ug/L	50
SELENIUM	60 ug/L	100
SILVER	< 10 ug/L	50
COLOR	< 3	
ODOR	1	
TURBIDITY	1.2 NTU	

DESCRIPTION OF SAMPLING POINT: NEAL RANCH #2 1910-1930
DATE/TIME COLLECTED: 2/26/91 1000

	RESULTS	MCL
TOTAL HARDNESS	143.6 mg/L	
CALCIUM HARDNESS	42.8 mg/L	
CALCIUM	17.1 mg/L	
MAGNESIUM	24.5 mg/L	
SODIUM	1296.0 mg/L	
POTASSIUM	11.3 mg/L	
TOTAL ALKALINITY	2112.0 mg/L	
HYDROXIDE	< 1.0 mg/L	
CARBONATE	< 1.0 mg/L	
BICARBONATE	2576.4 mg/L	
SULFATE	336.4 mg/L	
CHLORIDE	230.6 mg/L	
NITRATE	38.2 mg/L	45
FLUORIDE	3.0 mg/L	
TOTAL ANIONS	54.43 mEq/L	
TOTAL CATIONS	59.50 mEq/L	
RPD AMIONS/CATIONS	5.84 PERCENT	
pH	8.4 STD UNITS	
E.C.	5330.0 umho/cm	
TDS	3304.6 mg/L	
MBAS	< 0.02 mg/L	
MANGANESE	80 ug/L	50
COPPER	< 50 ug/l	1000
IRON	250 ug/L	300
ZINC	< 50 ug/L	5000
BARIUM	< 100 ug/L	1000
CHROMIUM	< 10 ug/L	50
CADMIUM	< 1 ug/L	10
LEAD	< 5 ug/l	50
ALUMINUM	< 100 ug/L	1000
MERCURY	< 1 ug/l	2
ARSENIC	460 ug/L	50
SELENIUM	20 ug/L	100
SILVER	< 10 ug/L	50
COLOR	15	
ODOR	3	
TURBIDITY	4.5 NTU	



LITHOLOGIC LOG

CONDENSED CUTTINGS DESCRIPTION

440-1480 CLAY
Blue, blue green, blue gray, green, and gray clay.

1260-1280 Silty.

1330-1450 Black, gray black mud.
1370-1390 Few gravels.
1390-1420 Silty.

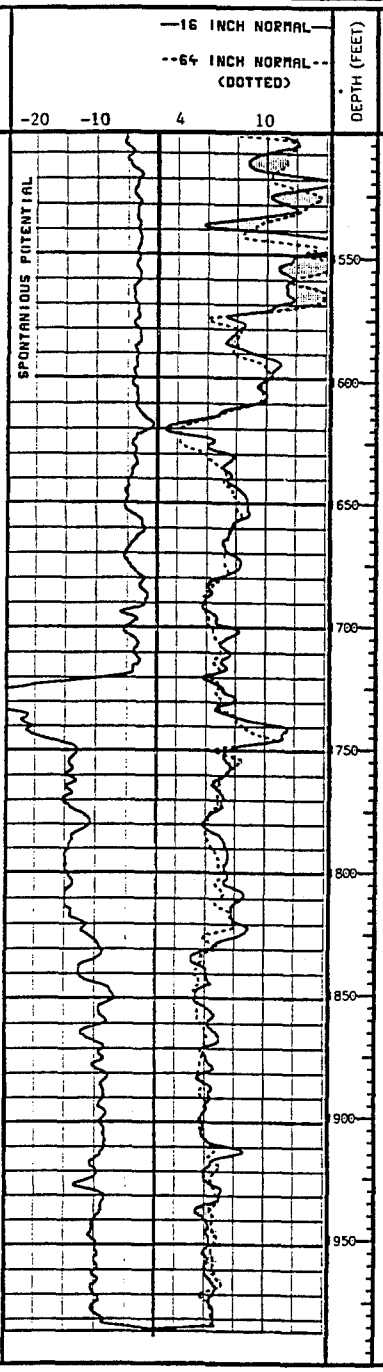
1480-1620 SAND
Mostly fine to coarse sand with finer interbeds. The depth of the top and bottom of this interval is based on the electric log. Log of cuttings shows an increasing sand content beginning at 1500 feet.

PAGE OF | DRILL HOLE NR-2 [Page 3]

USBR Drill Hole Completion and Data Log
Monitoring Well NR-2

FEATURE Drill Hole Completed with Nested Piezometers — DRILLED DEPTH 1994 Ft.
PROJECT Indian Wells Valley Groundwater Project (Water District Well) — COMPLETED DEPTH 1950 Ft.
LOCATION T. 25 S., R. 38 E., Sec. 36g — STATE CA — BEGUN 2-04-91
TYPE OF WELL Observation — FINISHED 2-15-91
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION 2314.7
COORDINATES — TOP OF CASING ELEV. 2317.7
HOLE LOGGED BY Cutting Description by Dipti Barari, N. Amer. Chem., Co., Trona CA — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS Yes, See Notes
TDS See Notes
OTHER LOGS Drilling Time — REVIEWED BY Dennis Watt, USBR

NOTES



CONDENSED CUTTINGS DESCRIPTION

1480-1620 SAND
Mostly fine to coarse sand with finer interbeds. The depth of the top and bottom of this interval is based on the electric log. Log of cuttings shows an increasing sand content beginning at 1500 feet.

1620-1635 CLAY
Mostly gray, black, green, or gray black clay.

1635-1985 INTERBEDDED SAND AND CLAY
Clays are green, gray and black. Sands are fine to coarse. About 50% of interval is clay.

PAGE OF | DRILL HOLE NR-2 [Page 4]

USBR Drill Hole Completion and Data Log
Monitoring Well MW-32

FEATURE Drill Hole Completed with Nested Piezometers — DRILLED DEPTH 1968 Ft.
PROJECT Indian Wells Valley Groundwater Project (Water District Well) — COMPLETED DEPTH 1941 Ft.
LOCATION T.26 S., R.39 E., Sec. 27d — STATE CA — BEGUN 9-23-91
TYPE OF WELL Observation — FINISHED 10-8-91
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION
COORDINATES — TOP OF CASING ELEV. 2418.1
HOLE LOGGED BY Cuttings Description by Dipti Barari, N. Amer. Chem. Co., Trona CA — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS Yes, See Notes
TDS See Notes
OTHER LOGS — REVIEWED BY Dennis Watt, USBR

NOTES

DRILL SITE:
The well is located just north of the east west dirt road just to the east of the center of the Indian Wells Valley Water District's Victor Street property.

DRILLED BY:
Rottman Drilling Company of Lancaster CA.

DRILLING RIG:
Custom built small oil-field rotary rig.

DRILLING METHOD:
Direct rotary with bentonite mud. 12 1/4 inch roller cone bit from surface to total depth.

HOLE COMPLETION:
Installed four 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each. Screens are at the following depth intervals: 360'-380', 880'-900', 1240'-1260', 1900'-1920'. Twenty feet of 2" pipe below each screen. Benseal (bentonite) plugs set at the following depth intervals: 430'-450', 700'-720', 980'-1000', 1290'-1310', 1680'-1700'.

DEVELOPMENT:
Each piezometer was air-lifted for about 12 hours and discharged an estimated 5-15 gallons per minute. Water samples for lab analysis were collected at the end of development.

DEPTH TO WATER:
All depths reported below were measured on December 12, 1991 from the top of the outer casing.

Screen Interval	Depth (Ft)
360'-380'	241.0
880'-900'	241.7
1240'-1260'	241.2
1900'-1920'	240.4

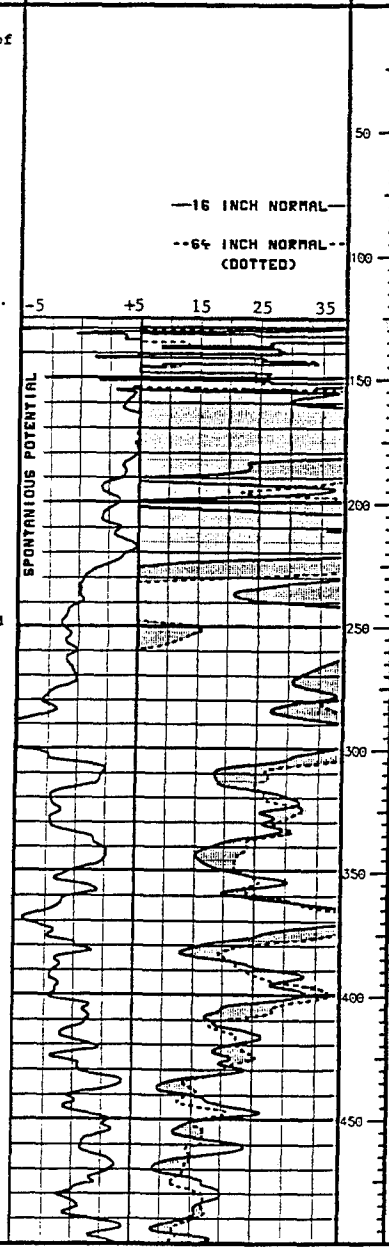
All depth to water measurements are available in an attachment to the Geohydrologic Appendix for this project.

SLUG TEST RESULTS:
Estimated transmissivity (ft^2/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.

Piezometer	T
Shallow	.009*
Shallow Medium	.31
Deep Medium	.23
Deep	.11

*Note - Too low. Poor development?

BARBOUR CORP
WELL SURVEYING
805-482-4988
ELECTRIC LOG



DEPTH (FEET)

LITHOLOGIC LOG

CONDENSED CUTTINGS DESCRIPTION

The interpretation below is reduced from a description of samples collected every 10 feet from the drilling mud return.

GENERAL

The collected samples and drilling character indicate a non-cemented alluvial fill from land surface to total depth.

Depth intervals are feet below land surface.

0-190 SAND
Light brown fine to medium sand.

90-100 About 10% coarse sand.

130-140 About 10% coarse sand.

190-220 CLAYEY SAND
Light brown, clayey fine to coarse sand.

190-200 About 50% clay.

200-210 About 20% clay.

210-220 About 10% clay.

220-350 SAND
Light brown fine to medium sand.

240-250 Fine sand.

350-360 SANDY CLAY
Light brown sandy clay.

360-410 CLAYEY SAND
Light brown clayey sand.

360-370 About 40% clay.

370-390 About 20% clay.

390-410 About 30% clay.

410-430 SANDY CLAY
Light brown sandy clay.

410-420 About 40% sand.

420-430 About 50% sand.

PAGE OF | DRILL HOLE MW-32 [Page 1]

USBR Drill Hole Completion and Data Log
Monitoring Well MW-32

FEATURE Drill Hole Completed with Nested Piezometers — DRILLED DEPTH 1968 Ft.
PROJECT Indian Wells Valley Groundwater Project (Water District Well) — COMPLETED DEPTH 1941 Ft.
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GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS Yes, See Note
TDS See Notes
OTHER LOGS — REVIEWED BY Dennis Watt, USBR

NOTES

WATER QUALITY:
Water analysis by:

Clinical Labs
1595 North "D" Street
San Bernardino CA 92405

Depth: 360'-380'

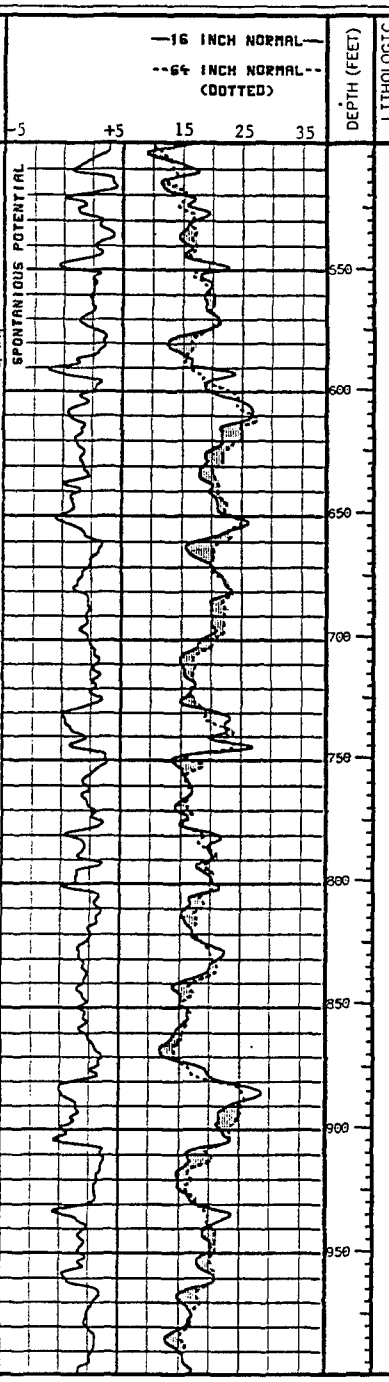
REPORTING UNITS	CONSTITUENT	ANALYSES RESULTS
mg/L	Total Hardness (as CaCO3)	88.0
mg/L	Calcium (Ca)	24.0
mg/L	Magnesium (Mg)	6.1
mg/L	Sodium (Na)	40.0
mg/L	Potassium (K)	4.6
Cations	Meq/L Value: 4.4	
mg/L	Total Alkalinity (AS CaCO3)	104.0
mg/L	Hydroxide (OH)	< 1.0
mg/L	Carbonate (CO3)	< 1.0
mg/L	Bicarbonate (HCO3)	126.9
mg/L*	Sulfate (SO4)	37.0
mg/L*	Chloride (Cl)	40.2
mg/L	Nitrate (as NO3)	7.2
mg/L	Fluoride (F) Temp. Depend.	1.1
Anions	Meq/L Value: 4.6	
Std. Units	PH (Laboratory)	8.8
umho/cm**	Specific Conductance (E.C.)	456.0
mg/L***	Total Filtarable Residue at 180C	252.4
Units	Apparent Color (Unfiltered)	< 3.0
TON	Odor Threshold at 60 C	1.0
NTU	Lab Turbidity	0.9
mg/L	MBAS	< 0.02

REPORTING UNITS	CONSTITUENT	ANALYSES RESULTS
ug/L	Aluminum (Al)	170.00
ug/L	Arsenic (As)	26.00
ug/L	Barium (Ba)	<100.00
ug/L	Cadmium (Cd)	< 1.00
ug/L	Chromium (Total Cr)	< 10.00
ug/L	Copper (Cu)	< 50.00
ug/L	Iron (Fe)	<100.00
ug/L	Lead (Pb)	< 5.00
ug/L	Manganese (Mn)	30.00
ug/L	Mercury (Hg)	< 1.00
ug/L	Selenium (Se)	< 5.00
ug/L	Silver (Ag)	< 10.00
ug/L	Zinc (Zn)	< 50.00

Depth: 880'-900'

REPORTING UNITS	CONSTITUENT	ANALYSES RESULTS
mg/L	Total Hardness (as CaCO3)	13.1
mg/L	Calcium (Ca)	10.4
mg/L	Magnesium (Mg)	2.2
mg/L	Sodium (Na)	49.2
mg/L	Potassium (K)	3.7
Cations	Meq/L Value: 1.9	
mg/L	Total Alkalinity (AS CaCO3)	84.0
mg/L	Hydroxide (OH)	< 1.0
mg/L	Carbonate (CO3)	< 1.0
mg/L	Bicarbonate (HCO3)	102.5
mg/L*	Sulfate (SO4)	24.1
mg/L*	Chloride (Cl)	23.2
mg/L	Nitrate (as NO3)	16.9
mg/L	Fluoride (F) Temp. Depend.	0.8
Anions	Meq/L Value: 1.2	
Std. Units	PH (Laboratory)	8.1
umho/cm**	Specific Conductance (E.C.)	330.0
mg/L***	Total Filtarable Residue at 180C	172.8
Units	Apparent Color (Unfiltered)	< 70.0
TON	Odor Threshold at 60 C	1.0
NTU	Lab Turbidity	20.0
mg/L	MBAS	< 0.02

REPORTING UNITS	CONSTITUENT	ANALYSES RESULTS
ug/L	Aluminum (Al)	120.00
ug/L	Arsenic (As)	36.00
ug/L	Barium (Ba)	<100.00
ug/L	Cadmium (Cd)	< 1.00
ug/L	Chromium (Total Cr)	< 10.00
ug/L	Copper (Cu)	< 50.00
ug/L	Iron (Fe)	1880.0
ug/L	Lead (Pb)	< 5.00
ug/L	Manganese (Mn)	< 30.00
ug/L	Mercury (Hg)	< 1.00
ug/L	Selenium (Se)	< 5.00
ug/L	Silver (Ag)	< 10.00
ug/L	Zinc (Zn)	< 50.00



CONDENSED CUTTINGS DESCRIPTION

430-480 SANDY CLAY
Blue (on drillers log) sandy clay.

430-450 About 10% sand.

450-460 About 30% sand.

460-470 About 10% sand.

470-480 About 50% sand.

480-500 CLAYEY SAND
Blue clayey sand.

500-560 SAND
Light brown fine to medium sand with some clay.

540-560 Some coarse sand.

560-1960 SAND
Light brown fine to medium sand with about 10% clay.

PAGE OF | DRILL HOLE MW-32 [Page 2]

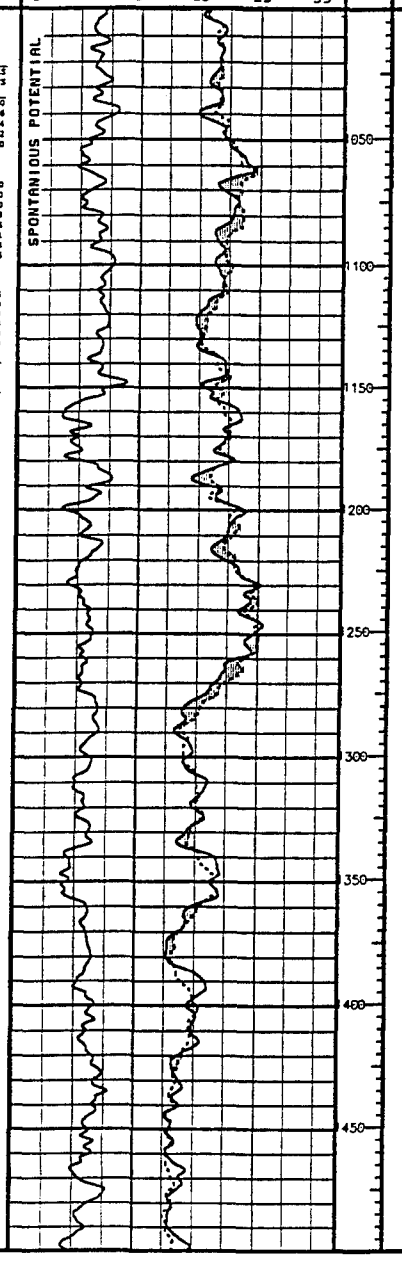
USBR Drill Hole Completion and Data Log
Monitoring Well MW-32

FEATURE Drill Hole Completed with Nested Piezometers — DRILLED DEPTH 1968 Ft.
PROJECT Indian Wells Valley Groundwater Project (Water District Well) — COMPLETED DEPTH 1941 Ft.
LOCATION T.26 S., R.39 E., Sec. 27d — STATE CA — BEGUN 9-23-91
TYPE OF WELL Observation — FINISHED 10-8-91
PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity — GROUND ELEVATION
COORDINATES — TOP OF CASING ELEV. 2418.1
HOLE LOGGED BY Cuttings Description by Dipti Barari, N. Amer. Chem. Co., Trona CA — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS Yes, See Note
TDS See Notes
OTHER LOGS — REVIEWED BY Dennis Watt, USBR

NOTES

Depth: 1240'-1260'

REPORTING UNITS	CONSTITUENT	ANALYSIS RESULTS
mg/L	Total Hardness (as CaCO3)	18.0
mg/L	Calcium (Ca)	5.6
mg/L	Magnesium (Mg)	1.4
mg/L	Sodium (Na)	59.2
mg/L	Potassium (K)	2.0
Cations	meq/L Value: 3.2	
mg/L	Total Alkalinity (As CaCO3)	90.0
mg/L	Hydroxide (OH)	< 1.0
mg/L	Carbonate (CO3)	< 1.0
mg/L	Bicarbonate (HCO3)	109.8
mg/L*	Sulfate (SO4)	22.6
mg/L*	Chloride (Cl)	26.1
mg/L	Nitrate (as NO3)	14.8
mg/L	Fluoride (F) Temp. Depend.	0.6
Anions	meq/L Value: 3.3	
Std. Units	PH (Laboratory)	8.5
umho/cm**	Specific Conductance (E.C.)	340.0
mg/L***	Total Filtrable Residue at 180C	179.3
Units	Apparent Color (Unfiltered)	< 70.0
TON	Odor Threshold at 60 C	4.0
NTU	Lab Turbidity	25.0
mg/L	MBAS	< 0.02
REPORTING UNITS	CONSTITUENT	ANALYSIS RESULTS
ug/L	Aluminum (Al)	130.00
ug/L	Arsenic (As)	17.00
ug/L	Barium (Ba)	<100.00
ug/L	Cadmium (Cd)	< 1.00
ug/L	Chromium (Total Cr)	< 10.00
ug/L	Copper (Cu)	< 30.00
ug/L	Iron (Fe)	4150.0
ug/L	Lead (Pb)	< 5.00
ug/L	Manganese (Mn)	100.00
ug/L	Mercury (Hg)	< 1.00
ug/L	Selenium (Se)	< 5.00
ug/L	Silver (Ag)	< 10.00
ug/L	Zinc (Zn)	< 50.00



CONDENSED CUTTINGS DESCRIPTION

560-1960 SAND
Light brown fine to medium sand with about 10% clay.

1320-1340 About 20% clay.

PAGE OF | DRILL HOLE MW-32 [Page 3]

USBR Drill Hole Completion and Data Log
Monitoring Well MW-32

FEATURE Drill Hole Completed with Nested Piezometers — DRILLED DEPTH 1968 Ft.
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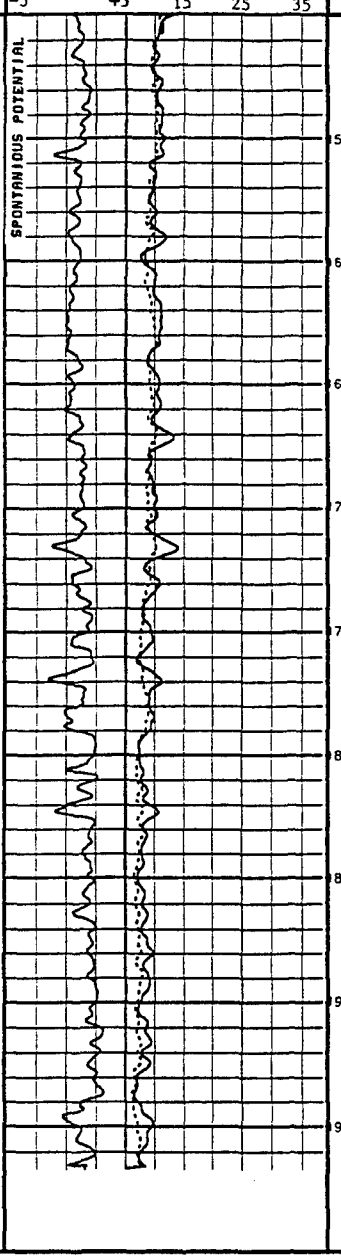
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature — LAB ANALYSIS Yes, See Note
TDS See Notes
OTHER LOGS — REVIEWED BY Dennis Wart, USBR

NOTES

Depth: 1900'-1920'

REPORTING UNITS	CONSTITUENT	ANALYSIS RESULTS
mg/L	Total Hardness (as CaCO3)	24.0
mg/L	Calcium (Ca)	7.4
mg/L	Magnesium (Mg)	1.8
mg/L	Sodium (Na)	190.5
mg/L	Potassium (K)	4.1
Cations	Meq/L Value: 8.9	
mg/L	Total Alkalinity (As CaCO3)	198.0
mg/L	Hydroxide (OH)	< 1.0
mg/L	Carbonate (CO3)	< 1.0
mg/L	Bicarbonate (HCO3)	241.4
mg/L*	Sulfate (SO4)	138.2
mg/L*	Chloride (Cl)	78.8
mg/L	Nitrate (as NO3)	1.0
mg/L	Fluoride (F) Temp. Depend.	3.6
Anions	Meq/L Value: 9.4	
Std. Units	PH (Laboratory)	8.6
umho/cm**	Specific Conductance (E.C.)	860.0
mg/L***	Total Filterable Residue at 180C	526.4
Units	Apparent Color (Unfiltered)	< 70.0
TON	Odor Threshold at 60 C	1.0
NTU	Lab Turbidity	74.0
mg/L	MBAS	< 0.02

REPORTING UNITS	CONSTITUENT	ANALYSIS RESULTS
ug/L	Aluminum (Al)	635.00
ug/L	Arsenic (As)	61.00
ug/L	Barium (Ba)	<100.00
ug/L	Cadmium (Cd)	< 1.00
ug/L	Chromium (Total Cr)	< 10.00
ug/L	Copper (Cu)	< 30.00
ug/L	Iron (Fe)	1350.0
ug/L	Lead (Pb)	< 5.00
ug/L	Manganese (Mn)	100.00
ug/L	Mercury (Hg)	< 1.00
ug/L	Selenium (Se)	< 5.00
ug/L	Silver (Ag)	< 10.00
ug/L	Zinc (Zn)	< 30.00



CONDENSED CUTTINGS DESCRIPTION

560-1960 SAND
Light brown fine to medium sand with about 10% clay.

1570-1590 About 30% clay.

PAGE OF | DRILL HOLE MW-32 [Page 4]

USBR Drill Hole Completion and Data Log
(Land Surface to 2,000 Feet)
Geothermal Test Well SNORT #1

FEATURE: Drill Hole Completed with Two "Shallow" Piezometers — DRILLED DEPTH: 7,394 Ft.
PROJECT: Indian Wells Valley Groundwater Project (Navy Geothermal Test Well) — COMPLETED DEPTH: See Notes
LOCATION: T. 25 S., R.39 E., Sec. 23 — STATE: CA — BEGUN: 9-8-91
TYPE OF WELL: Geothermal Test Well - Naval Air Warfare Station, Geothermal Office — FINISHED: 9-30-91
PURPOSE: Temperature Gradient, Lithology, Groundwater Quality, Piezometric Level — GROUND ELEVATION:
COORDINATES: — TOP OF CASING ELEV.:
HOLE LOGGED BY: Norm Wycoff and Doug Hosto — DEPTH TO WATER (DATE): See Notes
GEOPHYSICAL LOGS: Dual Induction (ILD, SFLA, CILD), Spontaneous Potential, Natural Gamma, Temperature — LAB ANALYSIS: Yes, See Notes
OTHER LOGS: Drillling Time — TDS: See Notes
REVIEWED BY:

NOTES

The Indian Wells Valley Groundwater Project was allowed to complete two intervals in the upper section of SNORT #1, a geothermal test well on the Naval Air Warfare Station. Only the upper 2,000 feet is described by this log. Total drilled depth was 7,394 feet.

DRILL SITE:
West of the Range Access Road in the center of section 23 on the Naval Air Warfare Station. About one mile north of the north end of the SNORT.

DRILLED BY:
Welch and Howell Drilling of El Centro CA.

DRILLING RIG:
Mac double (106' total height) direct rotary rig.

DRILLING METHOD:
Direct rotary with bentonite mud. 12 1/4 inch roller cone bit to 597 feet. 8 1/2 inch bit to 2,464 feet.

HOLE COMPLETION:
9 5/8 inch steel casing set to 572 feet, geo. mix to surface; 7 inch casing set to 2442 feet, geo. mix to surface. Perforated 840'-880' and 1430'-1470' and set cement plug at 1000'-1100'. Access to 1430'-1470' perfs via 1 1/2 inch pipe through cement plug. Lower perforated intervals: 3,320'-3,340', 5,550'-5,570', 7,120'-7,140', and 7,400'. No flow from 1,430'-1,450' and 7,400'.

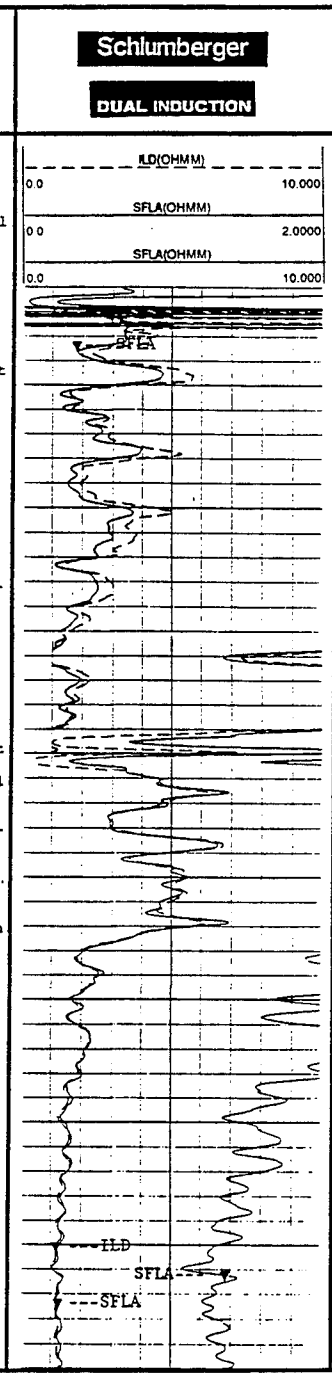
DEVELOPMENT:
Each perfed interval was nitrogen lifted. Water samples for lab analysis were collected at the end of development.

SLUG TEST RESULTS:
Slug test were not performed.

WATER QUALITY:
Laboratory water analysis by:

BC Laboratories
4100 Atlas Ct.
Bakersfield CA 93306

(See following pages)



DEPTH (FEET): 50, 100, 150, 200, 250, 300, 350, 400, 450

LITHOLOGIC LOG

LITHOLOGY SYMBOLS: Clay, Shale, Siltstone, Sand, Sandstone, Con-glomerate

Sand: clr to fros wht, occ orng yel, v hd, m to crs gr, sng to sbrnd, well srtd, tr calc cmt, tr mica.

Clay: lt tan to buff, hyd, sft, stky, sthy lust, smth tex, sbnt calc cmt, tr mica.

Clay: lt gy to gy, sft, hyd, smth tex, sthy lust, sbnt calc cmt, mnr mica.

Clay: lt gy to gy, sft, stky, hyd, smth tex, sthy lust, sbnt calc cmt, mnr mica.

Sand: clr to fros wht, occ gn, hd, occ firm in fros wht gr, m to crs gr, m well srtd, tr calc cmt, good vis por.

Sand: glsy to fros wht, occ gn, hd, vf to m gr, m poor srtd, tr calc cmt, mod blk & gn lith frags, tr mica.

Sand: clr to fros wht, hd, f to m gr, sbang to sbrnd, pred sil mtx, sl silty, tr calc cmt, m vis por, mica.

Sand: clr to fros wht, occ gn & yel, tr bl gy, hd, f to crs gr, sng to sbrnd, poor to m srtd, tr calc cmt, m vis por, m mica.

PAGE OF | SNORT-1 [Page 1]

USBR Drill Hole Completion and Data Log
(Land Surface to 2,000 Feet)
Geothermal Test Well SNORT #1

FEATURE: Drill Hole Completed with Two "Shallow" Piezometers — DRILLED DEPTH: 7,394 Ft.
PROJECT: Indian Wells Valley Groundwater Project (Navy Geothermal Test Well) — COMPLETED DEPTH: See Notes
LOCATION: T. 25 S., R.39 E., Sec. 23 — STATE: CA — BEGUN: 9-8-91
TYPE OF WELL: Geothermal Test Well - Naval Air Warfare Station, Geothermal Office — FINISHED: 9-30-91
PURPOSE: Temperature Gradient, Lithology, Groundwater Quality, Piezometric Level — GROUND ELEVATION:
COORDINATES: — TOP OF CASING ELEV.:
HOLE LOGGED BY: Norm Wycoff and Doug Hosto — DEPTH TO WATER (DATE): See Notes
GEOPHYSICAL LOGS: Dual Induction (ILD, SFLA, CILD), Spontaneous Potential, Natural Gamma Temperature — LAB ANALYSIS: Yes, See Notes
TDS: See Notes
OTHER LOGS: Drillling Time — REVIEWED BY:

NOTES

Depth: 850'-870'

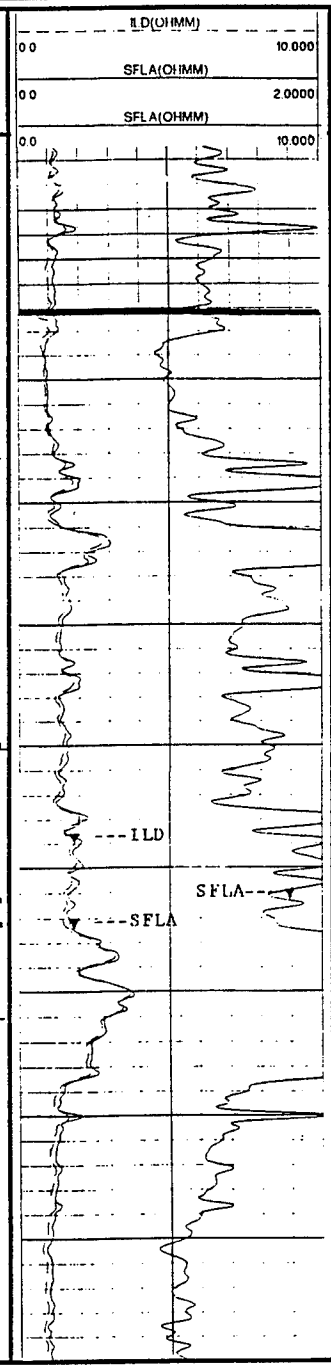
Constituents	Results	Units
Calcium	1.9	mg/L
Magnesium	1.0	mg/L
Sodium	3950.	mg/L
Potassium	25.	mg/L
Carbonate	1570.	mg/L
Bicarbonate	1950.	mg/L
Chloride	1040.	mg/L
Sulfate	46.	mg/L
Nitrate as NO3	None Detected	mg/L
Fluoride	27.	mg/L
Bromide	6.6	mg/L
pH	9.7	pH Units
Electrical Conductivity @ 25 C	15100.	umhos/cm
Total Dissolved Solids @ 180 C	9890.	mg/L
Ammonia as NH3	28.	mg/L
Nitrite Nitrogen	None Detected	mg/L
Ortho-phosphate	8.4	mg/L

Constituents	Results	Units
Aluminum	578.	µg/L
Antimony	None Detected	µg/L
Arsenic	5.2	µg/L
Boron	93.5	mg/L
Copper	None Detected	µg/L
Lithium	50.	µg/L
Manganese	36.	µg/L
Mercury	None Detected	µg/L
*Selenium	None Detected	µg/L
Si as SiO2	63.	mg/L
Strontium	72.	µg/L
Thallium	None Detected	µg/L
Zinc	54.	µg/L
Total Iron	1940.	µg/L

Depth: 3,300'-3,320'

Constituents	Results	Units
Calcium	35.	mg/L
Magnesium	6.9	mg/L
Sodium	3900.	mg/L
Potassium	14.5	mg/L
Carbonate	109.	mg/L
Bicarbonate	2530.	mg/L
Chloride	3420.	mg/L
Sulfate	1170.	mg/L
Nitrate as NO3	None Detected	mg/L
Fluoride	17.4	mg/L
Bromide	3.8	mg/L
pH	8.2	pH Units
Electrical Conductivity @ 25 C	15900.	umhos/cm
Total Dissolved Solids @ 180 C	9350.	mg/L
Ammonia as NH3	11.6	mg/L
Nitrite Nitrogen	None Detected	mg/L
Ortho-phosphate	0.84	mg/L

Constituents	Results	Units
Aluminum	1130.	µg/L
Antimony	None Detected	µg/L
Arsenic	62.	µg/L
Boron	52.5	mg/L
Copper	None Detected	µg/L
Lithium	1140.	µg/L
Manganese	57.	µg/L
Mercury	None Detected	µg/L
*Selenium	None Detected	µg/L
Si as SiO2	50.	mg/L
Strontium	1590.	µg/L
Thallium	None Detected	µg/L
Zinc	35.	µg/L
Total Iron	3480.	µg/L



DEPTH (FEET)
550
600
650
700
750
800
850
900
950

LITHOLOGIC LOG

Clay: brn gy to m tan, sft to sl fri, silty, m calc cmt, intbd w/ m to crs gr sbrnd sand, tr mica.

Clay: crm to ly gry, sft, stky, sthy lstr, smth tex, v calc, sbnt vg sng qtz sd, tr crushed qtz pebbles.

Sandstone: clr to fros wht, frm to hd, vf to med grn, sng to sbrnd, w srtd, gd calc cmt, tr pyr, tr mica.

Clay: med gry, occ grn gry, sft to sli frm, stky to gmmy, sthy lstr, smth tex, v calc, tr mica.

Sandstone: clr to lt gry, frm to hd, sli fri, vf to f grn, sng to sbang, mod to w srtd, gd calc cmt, tr pyr, tr mica, tr lithic frags.

Clay: med gry to grn gry, sft to sli frm, stky to gmmy, sthy lstr, smth tex, v calc, tr crushed qtz pebbles.

PAGE OF | SNORT-1 [Page 2]

USBR Drill Hole Completion and Data Log
(Land Surface to 2,000 Feet)
Geothermal Test Well SNORT #1

FEATURE Drill Hole Completed with Two "Shallow" Piezometers — DRILLED DEPTH 7,394 Ft.
PROJECT Indian Wells Valley Groundwater Project (Navy Geothermal Test Well) — COMPLETED DEPTH See Notes
LOCATION T. 25 S., R.39 E., Sec. 23 — STATE CA — BEGUN 9-8-91
TYPE OF WELL Geothermal Test Well - Naval Air Warfare Station, Geothermal Office — FINISHED 9-30-91
PURPOSE Temperature Gradient, Lithology, Groundwater Quality, Piezometric Level — GROUND ELEVATION
COORDINATES — TOP OF CASING ELEV.
HOLE LOGGED BY Norm Wycoff and Doug Hosto — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Dual Induction (ILD, SFLA, CILD), Spontaneous Potential, Natural Gamma, Temperature — LAB ANALYSIS Yes, See Notes — TDS See Notes
OTHER LOGS Drillling Time — REVIEWED BY

NOTES

Depth: 5,550'-5,570'

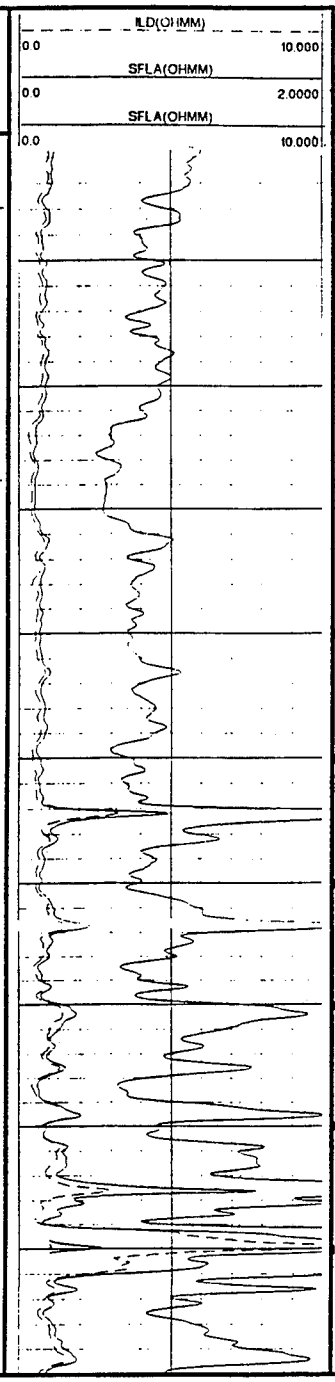
Constituents	Results	Units
Calcium	4.6	mg/L
Magnesium	3.2	mg/L
Sodium	4920.	mg/L
Potassium	22.	mg/L
Carbonate	77.0	mg/L
Bicarbonate	1270.	mg/L
Chloride	5100.	mg/L
Sulfate	2080.	mg/L
Nitrate as NO3	None Detected	mg/L
Fluoride	12.6	mg/L
Bromide	5.6	mg/L
pH	8.2	pH Units
Electrical Conductivity @ 25 C	24000.	umhos/cm
Total Dissolved Solids @ 180 C	12500.	mg/L
Ammonia as NH3	11.4	mg/L
Nitrite Nitrogen	None Detected	mg/L
Ortho-phosphate	0.44	mg/L

Constituents	Results	Units
Aluminum	741.	ug/L
Antimony	None Detected	ug/L
Arsenic	57.	ug/L
Boron	60.6	mg/L
Copper	None Detected	ug/L
Lithium	1550.	ug/L
Manganese	36.	ug/L
Mercury	None Detected	ug/L
*Selenium	None Detected	ug/L
Si as SiO2	45.	mg/L
Strontium	3100.	ug/L
Thallium	None Detected	ug/L
Zinc	19.	ug/L
Total Iron	806.	ug/L

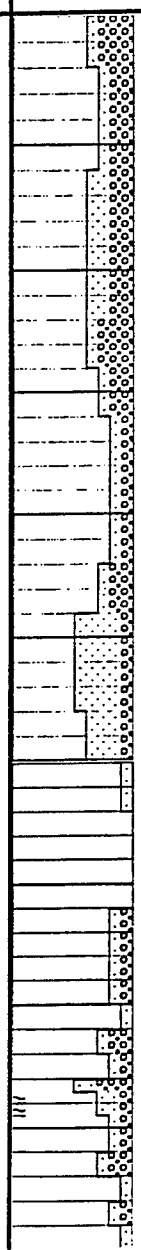
Depth: 7,120'-7,140'

Constituents	Results	Units
Calcium	4.6	mg/L
Magnesium	3.2	mg/L
Sodium	3480.	mg/L
Potassium	9.3	mg/L
Carbonate	456.	mg/L
Bicarbonate	2620.	mg/L
Chloride	2460.	mg/L
Sulfate	510.	mg/L
Nitrate as NO3	None Detected	mg/L
Fluoride	24.	mg/L
Bromide	2.9	mg/L
pH	8.9	pH Units
Electrical Conductivity @ 25 C	13500.	umhos/cm
Total Dissolved Solids @ 180 C	8900.	mg/L
Ammonia as NH3	14.6	mg/L
Nitrite Nitrogen	None Detected	mg/L
Ortho-phosphate	0.24	mg/L

Constituents	Results	Units
Aluminum	1730.	ug/L
Antimony	None Detected	ug/L
Arsenic	80.	ug/L
Boron	52.9	mg/L
Copper	None Detected	ug/L
Lithium	560.	ug/L
Manganese	98.	ug/L
Mercury	None Detected	ug/L
*Selenium	None Detected	ug/L
Si as SiO2	43.	mg/L
Strontium	350.	ug/L
Thallium	None Detected	ug/L
Zinc	46.	ug/L
Total Iron	8960.	ug/L



DEPTH (FEET) | LITHOLOGIC LOG



Clay: med gry, sft, v stky, ethy lstr, smth tex, v calc, abnt blk cong frags, tr chlorite, tr pyr.

Clay: med gry to gn gry, sft to sli frm, v stky, ethy lstr, smth tex, v calc, tr crushed qtz pebbles, tr lithic frags.

Clay: dk gry to blk, sft, stky, sooty lstr, smth tex, v calc, strong hydrocarbon odor.

Sand: clr to fros wht, f to med grn, sbrnd to rnd, w srtd, pred uncons, occ wk slty calc cmt, fri, tr fe stn.

Clay: v dk gry to blk, sft to sli frm, stky, sooty lstr, sm tex, mod to v calc, tr vf gr qtz sd, hydrocarbon odor.

Clay: blk, occ mod dk gry, sft to sli frm, stky, sooty lstr, mod to v calc, hydrocarbon odor, tr crushed qtz pebbles.

Sand: clr to fros wht, vf to f grn, occ med to crs grn, grd to conglomerate, tr gd calc cmt, abnt qtz pebbles, tr lithic pebbles, tr lign.

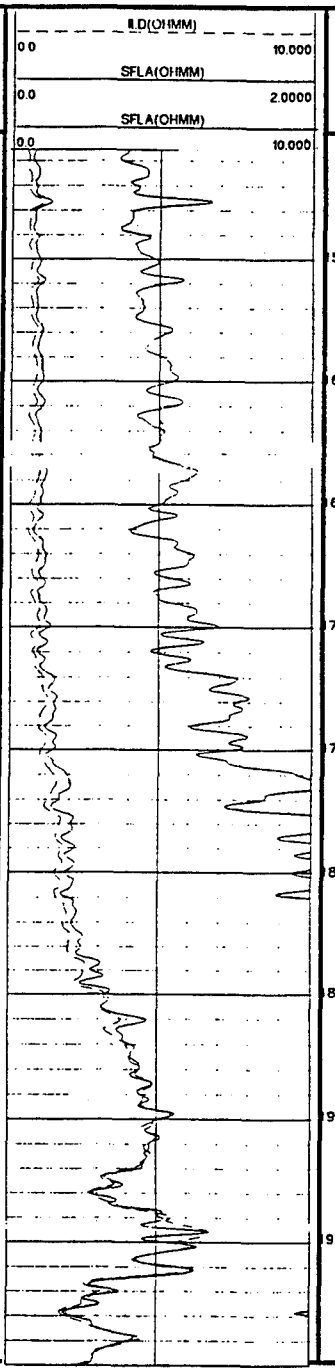
Clay: dk gry, sft to sli frm, stky, ethy lstr, smth tex, mod to v calc, tr halite, tr crushed qtz pebbles, tr vf gr qtz sd.

PAGE OF | SNORT-1 [Page 3]

USBR Drill Hole Completion and Data Log
(Land Surface to 2,000 Feet)
Geothermal Test Well SNORT #1

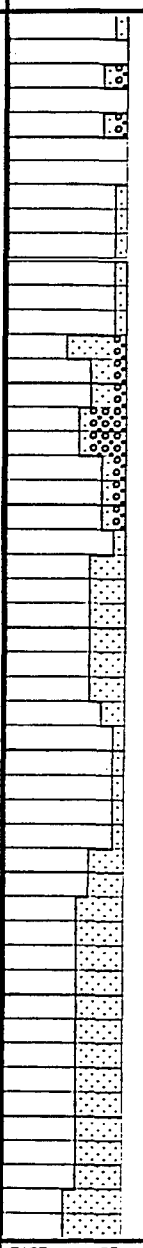
FEATURE Drill Hole Completed with Two "Shallow" Piezometers — DRILLED DEPTH 7,394 Ft.
PROJECT Indian Wells Valley Groundwater Project (Navy Geothermal Test Well) — COMPLETED DEPTH See Notes
LOCATION T. 25 S., R.39 E., Sec. 23 — STATE CA — BEGUN 9-8-91
TYPE OF WELL Geothermal Test Well - Naval Air Warfare Station, Geothermal Office — FINISHED 9-30-91
PURPOSE Temperature Gradient, Lithology, Groundwater Quality, Piezometric Level — GROUND ELEVATION
COORDINATES — TOP OF CASING ELEV.
HOLE LOGGED BY Norm Wycoff and Doug Hosto — DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Dual Induction (ILD, SFLA, CILD), Spontaneous Potential, Natural Gamma — LAB ANALYSIS Yes, See Notes
Temperature — TDS See Notes
OTHER LOGS Drillling Time — REVIEWED BY

NOTES



DEPTH (FEET)

LITHOLOGIC LOG



550
600
650
700
750
800
850
900
950

Clay: dk gry to lt gry, sli sft to v frm, stky to gmmy, sthy lstr, smth tex, mod to v calc, tr halite, tr vf qtz sd, tr crushed qtz pebbles, tr lithic frags.

Clay: blk to blue blk, sft to sli frm, stky, sooty lstr, smth tex, v calc, tr vf grn qtz sd.

Sand: clr to sl fros, crs to m gr, sbang to sbrnd gr, intbd w/ gy sol cly, tr pyr.

Clay: lt tan to dk gy, fri to firm, occ soft, calc, ~ mica in prt, tr pyr in dk silty frags.

Carbide Lag @ 1835ft: 15.87 Min, 107 SPM, 38 Vis, 5% over Calc Lag.

Sandstone: wh to clr, occ gn, fri to firm, clr to fros qtz gr, vf to m gr, sbrnd, m well srtd, abnt calc cmt, mica in vf sand mtx.

PAGE OF | SNORT-1 [Page 4]

Appendix C
WATER QUALITY ANALYSES

BC LABORATORIES

Naval Air Warfare Center
Weapons Division
Code 2606
China Lake, CA 93555-6001
Attn.: DR. MONASTERO 619-939-2700

Date Reported: 09/09/92
Date Received: 08/26/92
Laboratory No.: 7640-1

Sample Description: GEOTHERMAL PROGRAM - PROJECT #1 SNORT: SDW-1, P-2, 08-24-92 @ 8:30
COLLECTED BY HASTING

SNORT 7,120'-7,140'
WATER ANALYSIS
(METALS)

Constituents	Results	Units	D.L.R.	Method
Aluminum	1730.	µg/L	50.	SW-6010
Antimony	None Detected	µg/L	100.	SW-6010
Arsenic	80.	µg/L	2.	SW-7060
Boron	52.9	mg/L	0.10	SW-6010
Copper	None Detected	µg/L	10.	SW-6010
Lithium	560.	µg/L	10.	SW-7430
Manganese	98.	µg/L	10.	SW-6010
Mercury	None Detected	µg/L	0.2	EPA-245.1
* Selenium	None Detected	µg/L	10.	SW-7740
as SiO2	43.	mg/L	0.2	SW-6010
Strontium	350.	µg/L	10.	SW-6010
Thallium	None Detected	µg/L	5.	SW-7841
Zinc	46.	µg/L	10.	SW-6010
Total Iron	8960.	µg/L	50.	SW-6010

* Detection limit increased due to matrix interferences.
D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:
EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods", EPA-SW-846, September, 1986.

Richard T. Sam
Department Supervisor

SNORT 7,120-7,140

BC LABORATORIES

Naval Air Warfare Center
Weapons Division
Code 2862
China Lake, CA 93555-6001
Attn.: Disbursing Officer 619-939-2116

Date Reported: 09/16/92
Date Received: 09/02/92
Laboratory No.: 7880-1

Sample Description: BOR-10 640. SAMPLE WAS TAKEN ON 09-01-92 @ 3:00AM BY HASTING.

WATER ANALYSIS
(METALS)

Constituents	Results	Units	D.L.R.	Method
Aluminum	2790.	µg/L	50.	SW-6010
Antimony	None Detected	µg/L	100.	SW-6010
Arsenic	16.	µg/L	2.	SW-7060
Barium	None Detected	µg/L	100.	SW-6010
Boron	4.9	mg/L	0.10	SW-6010
Cadmium	None Detected	µg/L	1.	SW-7131
Chromium	None Detected	µg/L	10.	SW-6010
Copper	None Detected	µg/L	10.	SW-6010
Lead	None Detected	µg/L	5.	SW-7421
Lithium	250.	µg/L	10.	SW-7430
Manganese	285.	µg/L	10.	SW-6010
Mercury	None Detected	µg/L	0.2	EPA-245.1
Selenium	2.7	µg/L	2.	SW-7740
Si as SiO2	48.	mg/L	0.2	SW-6010
Silver	None Detected	µg/L	10.	SW-6010
Strontium	399.	µg/L	10.	SW-6010
Thallium	None Detected	µg/L	5.	SW-7841
Zinc	None Detected	µg/L	10.	SW-6010
Total Iron	3530.	µg/L	50.	SW-6010

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:
EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods", EPA-SW-846, September, 1986.

Department Supervisor

cc: GEOTHERMAL PROGRAM

BC LABORATORIES

Naval Air Warfare Center
Weapons Division
Code 2862
China Lake, CA 93555-6001
Attn.: Disbursing Officer 619-939-2116

Date Reported: 09/15/92
Date Received: 09/02/92
Laboratory No.: 7880-2

Sample Description: BOR-10 1180. SAMPLE WAS TAKEN ON 09-01-92 @ 12:00PM BY HASTING.

WATER ANALYSIS
(GENERAL CHEMISTRY)

Constituents		Results	Units	D.L.R.	Method
Calcium		8.3	mg/L	0.1	SW-7140
Magnesium		2.7	mg/L	0.01	SW-7450
Sodium		200.	mg/L	0.1	SW-7770
Potassium		11.5	mg/L	0.1	SW-7610
Total Cations		9.63	meq/L	0.01	Calculated
Hydroxide	<	0.8	mg/L	0.8	SM-403
Carbonate		11.1	mg/L	2.6	SM-403
Bicarbonate		60.0	mg/L	2.6	SM-403
Chloride		139.	mg/L	1.8	EPA-300.0
lfate		193.	mg/L	5.	EPA-300.0
..trate/Nitrite as NO3		1.8	mg/L	0.4	EPA-353.2
Fluoride		1.9	mg/L	0.05	EPA-340.2
Bromide		0.36	mg/L	0.05	EPA-300.0
Total Anions		9.42	meq/L	0.01	Calculated
pH		8.7	pH Units	0.1	SW-9040
Electrical Conductivity @ 25 C		1040.	umhos/cm	1.	SW-9050
Total Dissolved Solids @ 180 C		580.	mg/L	10.	EPA-160.1
Color		20.	Color Units	1.0	EPA-110.2
Odor		4.	Odor Units	NA	EPA-140.1
Turbidity		15.	NT Units	0.05	EPA-180.1
MBAS		0.72	mg/L	0.02	EPA-425.1
Hardness as CaCO3		31.8	mg/L	0.3	Calculated
Alkalinity as CaCO3		67.7	mg/L	3.0	Calc
Ammonia as NH3		0.38	mg/L	0.02	EPA-350.1
Nitrite Nitrogen	<	0.1	mg/L	0.1	EPA-353.2
Ortho-phosphate	<	0.10	mg/L	0.10	EPA-365.1

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:
EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
SM = "Standard Methods for Examination of Water and Wastewater", 16th Edition 1986.
SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods", EPA-SW-846, September, 1986.

M. Atencio
Department Supervisor

cc: GEOTHERMAL PROGRAM

BC LABORATORIES

Naval Air Warfare Center
Weapons Division
Code 2862
China Lake, CA 93555-6001
Attn.: Disbursing Officer 619-939-2116

Date Reported: 09/15/92
Date Received: 09/02/92
Laboratory No.: 7880-2

Sample Description: BOR-10 1180. SAMPLE WAS TAKEN ON 09-01-92 @ 12:00PM BY HASTING.

WATER ANALYSIS
(METALS)

Constituents	Results	Units	D.L.R.	Method
Aluminum	742.	µg/L	50.	SW-6010
Antimony	None Detected	µg/L	100.	SW-6010
Arsenic	2.7	µg/L	2.	SW-7060
Barium	None Detected	µg/L	100.	SW-6010
Boron	1.3	mg/L	0.10	SW-6010
Cadmium	None Detected	µg/L	1.	SW-7131
Chromium	None Detected	µg/L	10.	SW-6010
Copper	None Detected	µg/L	10.	SW-6010
Lead	None Detected	µg/L	5.	SW-7421
Thallium	None Detected	µg/L	10.	SW-7430
Manganese	69.	µg/L	10.	SW-6010
Mercury	None Detected	µg/L	0.2	EPA-245.1
Selenium	2.4	µg/L	2.	SW-7740
Si as SiO2	12.	mg/L	0.2	SW-6010
Silver	None Detected	µg/L	10.	SW-6010
Strontium	84.	µg/L	10.	SW-6010
Thallium	None Detected	µg/L	5.	SW-7841
Zinc	None Detected	µg/L	10.	SW-6010
Total Iron	1830.	µg/L	50.	SW-6010

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:
EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods", EPA-SW-846, September, 1986.

Department Supervisor

cc: GEOTHERMAL PROGRAM

BC LABORATORIES

Naval Air Warfare Center
Weapons Division
Code 2862
China Lake, CA 93555-6001
Attn.: Disbursing Officer 619-939-2116

Date Reported: 09/15/92
Date Received: 09/02/92
Laboratory No.: 7880-3

Sample Description: BOR-10 1560. SAMPLE WAS TAKEN ON 09-01-92 @ 16:00PM BY HASTING.

WATER ANALYSIS
(GENERAL CHEMISTRY)

Constituents	Results	Units	D.L.R.	Method
Calcium	47.	mg/L	0.1	SW-7140
Magnesium	105.	mg/L	0.01	SW-7450
Sodium	254.	mg/L	0.1	SW-7770
Potassium	32.	mg/L	0.1	SW-7610
Total Cations	22.8	meq/L	0.01	Calculated
Hydroxide	< 0.8	mg/L	0.8	SM-403
Carbonate	< 2.6	mg/L	2.6	SM-403
Bicarbonate	1130.	mg/L	2.6	SM-403
Chloride	49.5	mg/L	1.8	EPA-300.0
Sulfate	156.	mg/L	5.	EPA-300.0
Nitrate/Nitrite as NO3	0.9	mg/L	0.4	EPA-353.2
Fluoride	0.56	mg/L	0.05	EPA-340.2
Bromide	0.12	mg/L	0.05	EPA-300.0
Total Anions	23.2	meq/L	0.01	Calculated
pH	7.9	pH Units	0.1	SW-9040
Electrical Conductivity @ 25 C	1910.	umhos/cm	1.	SW-9050
Total Dissolved Solids @ 180 C	1220.	mg/L	10.	EPA-160.1
Color	30.	Color Units	1.0	EPA-110.2
Odor	4.	Odor Units	NA	EPA-140.1
Turbidity	27.	NT Units	0.05	EPA-180.1
MBAS	0.66	mg/L	0.02	EPA-425.1
Hardness as CaCO3	550.	mg/L	0.3	Calculated
Alkalinity as CaCO3	926.	mg/L	3.0	Calc
Ammonia as NH3	0.17	mg/L	0.02	EPA-350.1
Nitrite Nitrogen	< 0.1	mg/L	0.1	EPA-353.2
Ortho-phosphate	0.48	mg/L	0.10	EPA-365.1

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:
EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
SM = "Standard Methods for Examination of Water and Wastewater", 16th Edition 1986.
SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods", EPA-SW-846, September, 1986.

M. Atencio
Department Supervisor

cc: GEOTHERMAL PROGRAM

BC LABORATORIES

Naval Air Warfare Center
Weapons Division
Code 2862
China Lake, CA 93555-6001
Attn.: Disbursing Officer 619-939-2116

Date Reported: 09/15/92
Date Received: 09/02/92
Laboratory No.: 7880-3

Sample Description: BOR-10 1560. SAMPLE WAS TAKEN ON 09-01-92 @ 16:00PM BY HASTING.

WATER ANALYSIS
(METALS)

Constituents	Results	Units	D.L.R.	Method
Aluminum	None Detected	µg/L	50.	SW-6010
Antimony	None Detected	µg/L	100.	SW-6010
Arsenic	7.8	µg/L	2.	SW-7060
Barium	None Detected	µg/L	100.	SW-6010
Boron	1.1	mg/L	0.10	SW-6010
Cadmium	None Detected	µg/L	1.	SW-7131
Chromium	None Detected	µg/L	10.	SW-6010
Copper	None Detected	µg/L	10.	SW-6010
Lead	None Detected	µg/L	5.	SW-7421
Lithium	250.	µg/L	10.	SW-7430
Manganese	95.	µg/L	10.	SW-6010
Mercury	None Detected	µg/L	0.2	EPA-245.1
Selenium	None Detected	µg/L	2.	SW-7740
Si as SiO2	81.	mg/L	0.2	SW-6010
Silver	None Detected	µg/L	10.	SW-6010
Strontium	678.	µg/L	10.	SW-6010
Thallium	None Detected	µg/L	5.	SW-7841
Zinc	None Detected	µg/L	10.	SW-6010
Total Iron	6910.	µg/L	50.	SW-6010

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:
EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods", EPA-SW-846, September, 1986.

Department Supervisor

cc: GEOTHERMAL PROGRAM

BC LABORATORIES

Naval Air Warfare Center
Weapons Division
Code 2862
China Lake, CA 93555-6001
Attn.: Disbursing Officer 619-939-2116

Date Reported: 09/15/92
Date Received: 09/02/92
Laboratory No.: 7880-4

Sample Description: BOR-10 1930. SAMPLE WAS TAKEN ON 09-02-92 @ 3:00AM BY HASTING.

WATER ANALYSIS
(GENERAL CHEMISTRY)

Constituents	Results	Units	D.L.R.	Method
Calcium	30.	mg/L	0.1	SW-7140
Magnesium	121.	mg/L	0.01	SW-7450
Sodium	320.	mg/L	0.1	SW-7770
Potassium	44.	mg/L	0.1	SW-7610
Total Cations	26.5	meq/L	0.01	Calculated
Hydroxide	< 0.8	mg/L	0.8	SM-403
Carbonate	< 2.6	mg/L	2.6	SM-403
Bicarbonate	1280.	mg/L	2.6	SM-403
Chloride	58.2	mg/L	1.8	EPA-300.0
lfate	171.	mg/L	5.	EPA-300.0
trate/Nitrite as NO3	0.9	mg/L	0.4	EPA-353.2
Fluoride	0.8	mg/L	0.05	EPA-340.2
Bromide	0.18	mg/L	0.05	EPA-300.0
Total Anions	26.2	meq/L	0.01	Calculated
pH	8.1	pH Units	0.1	SW-9040
Electrical Conductivity @ 25 C	2400.	umhos/cm	1.	SW-9050
Total Dissolved Solids @ 180 C	1330.	mg/L	10.	EPA-160.1
Color	30.	Color Units	1.0	EPA-110.2
Odor	4.	Odor Units	NA	EPA-140.1
Turbidity	27.	NT Units	0.05	EPA-180.1
MBAS	0.96	mg/L	0.02	EPA-425.1
Hardness as CaCO3	576.	mg/L	0.3	Calculated
Alkalinity as CaCO3	1050.	mg/L	3.0	Calc
Ammonia as NH3	0.05	mg/L	0.02	EPA-350.1
Nitrite Nitrogen	< 0.1	mg/L	0.1	EPA-353.2
Ortho-phosphate	0.39	mg/L	0.10	EPA-365.1

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:
EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
SM = "Standard Methods for Examination of Water and Wastewater", 16th Edition 1986.
SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods", EPA-SW-846, September, 1986.

M. Atencio
Department Supervisor

cc: GEOTHERMAL PROGRAM

BC LABORATORIES

Naval Air Warfare Center
Weapons Division
Code 2862
China Lake, CA 93555-6001
Attn.: Disbursing Officer 619-939-2116

Date Reported: 09/15/92
Date Received: 09/02/92
Laboratory No.: 7880-4

Sample Description: BOR-10 1930. SAMPLE WAS TAKEN ON 09-02-92 @ 3:00AM BY HASTING.

WATER ANALYSIS
(METALS)

Constituents	Results	Units	D.L.R.	Method
Aluminum	None Detected	µg/L	50.	SW-6010
Antimony	None Detected	µg/L	100.	SW-6010
Arsenic	9.8	µg/L	2.	SW-7060
Barium	None Detected	µg/L	100.	SW-6010
Boron	1.6	mg/L	0.10	SW-6010
Cadmium	None Detected	µg/L	1.	SW-7131
Chromium	None Detected	µg/L	10.	SW-6010
Copper	None Detected	µg/L	10.	SW-6010
Lead	None Detected	µg/L	5.	SW-7421
Lithium	180.	µg/L	10.	SW-7430
Manganese	286.	µg/L	10.	SW-6010
Mercury	None Detected	µg/L	0.2	EPA-245.1
Selenium	None Detected	µg/L	2.	SW-7740
Si as SiO2	59.	mg/L	0.2	SW-6010
Silver	None Detected	µg/L	10.	SW-6010
Strontium	554.	µg/L	10.	SW-6010
Thallium	None Detected	µg/L	5.	SW-7841
Zinc	None Detected	µg/L	10.	SW-6010
Total Iron	5820.	µg/L	50.	SW-6010

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:
EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods", EPA-SW-846, September, 1986.

Department Supervisor

cc: GEOTHERMAL PROGRAM

4100 Atlas Ct. · Bakersfield, CA 93308 · (805) 327-4911 · FAX (805) 327-1918

BR-10 Deep

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

TITLE 22 CHEMICAL ANALYSIS

Date of Report: 02/26/91 Sample ID No.910945
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: C. Jolley
Name of Sampler:MOULTON Employed By:PURVEYOR
Date/Time Sample Collected: 91/02/02/1200 Date/Time Sample Received @ Lab: 91/02/02/1200 Date Analyses Completed: 91/02/26

System Name: NORTH AMERICAN CHEMICAL - AKA KERR MCGEE System Number: 36-042
Name or Number of Sample Source: NEAL RANCH #1 250-270

Water Type: (G/S) |S| Station Number: 036/042-001
Date/Time of Sample: |91|02|02|1200| (YY MM DD HHMM) User ID: TAN
Analyzing Agency Code: 3761 Date Analysis Completed: |91|02|26| (YY MM DD)
Submitted by:_____ Phone #:_____

Place an 'X' in box to delete all data for this station/date/time. |_|

'PORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS	MCL	DLR
mg/L	Total Hardness (as CaCO3)	00900	1030.0		
mg/L	Calcium (Ca)	00916	221.1		
mg/L	Magnesium (Mg)	00927	116.2		30.0
mg/L	Sodium (NA)	00929	456.8		
mg/L	Potassium (K)	00937	5.6		
Total Cations	Meq/L Value: 40.6				
mg/L	Total Alkalinity (AS CaCO3)	00410	370.0		
mg/L	Hydroxide (OH)	71830	< 1.0		
mg/L	Carbonate (CO3)	00445	< 1.0		
mg/L	Bicarbonate (HCO3)	00440	451.4		
mg/L*	Sulfate (SO4)	00945	1094.7		
mg/L*	Chloride (Cl)	00940	290.7		
mg/L	Nitrate (as NO3)	71850	260.3	45	
mg/L	Fluoride (F) Temp. Depend.	00951	2.4	****	0.1
Total Anions	Meq/L Value: 42.7				
Std. Units	PH (Laboratory)	00403	7.9		
umho/cm**	Specific Conductance (E.C.)	00095	3880.0		
mg/L***	Total Filterable Residue at 180C (TDS)	70300	2405.6		
Units	Apparent Color (Unfiltered)	00081	< 3.0		
TON	Odor Threshold at 60 C	00086	1.0		1.0
NTU	Lab Turbidity	82079	1.9		
mg/L	MBAS	38260	0.18	0.5	0.02

* 250-500-600 ** 900-1600-2200 *** 500-100-1500 **** 1.4-2.4

NR-1 Shallow

PAGE 2 OF 2 910945

* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS		MCL	DLR
ug/L	Arsenic (As)	01002	<	10	50	10
ug/L	Barium (Ba)	01007	<	100	1000	100
ug/L	Cadmium (Cd)	01027	<	1	10	1
ug/L	Chromium (Total Cr)	01034	<	10	50	10
ug/L	Copper (Cu)	01042	<	50	1000	50
ug/L	Iron (Fe)	01045		100	300	100
ug/L	Lead (Pb)	01051	<	5	50	5
ug/L	Manganese (Mn)	01055		80	50	30
ug/L	Mercury (Hg)	71900	<	1	2	1
ug/L	Selenium (Se)	01147		170	10	5
ug/L	Silver (Ag)	01077	<	10	50	10
ug/L	Zinc (Zn)	01092	<	50	5000	50
ug/L	Aluminum	01105		180	1000	100
	ORGANIC CHEMICALS					
ug/L	Endrin (Hexadrin)	39390			0.2	0.02
ug/L	Gamma-BHC (Lindane)	39340			4	0.4
ug/L	Methoxychlor	39480			100	10.0
ug/L	Toxaphene	39400			5	0.5
ug/L	2,4-D	39730			100	10
ug/L	2,4,5-TP (Silvex) (WEED-B-GON)	39045			10	
	ADDITIONAL ANALYSES					
NTU	Field Turbidity	82078				0.1
C	Source Temperature C	00010				
	Langelier Index Source Temp.	71814				
	Langelier Index at 60 C	71813				
Std. Units	Field PH	00400				
	Agressiveness Index	82383				
mg/L	Silica	00955				
mg/L	Phosphate	00650				
mg/L	Iodide	71865				
	Sodium Absorption Ratio	00931				
	Asbestos	81855				
mg/L	Ammonia (NH3-N)	00612				
mg/L	Nitrite Nitrogen (NO2-N)	00615				
mg/L	Nitrate Nitrogen (NO3-N)	00618				1.0
mg/L	Nitrite (N)	00620				
mg/L	Beryllium	01012				
mg/L	Boron	01020				
mg/L	Thallium	01059				
mg/L	Nickel	01067				
mg/L	Antimony	01097				0.05
mg/L	Lithium	01132				
mg/L	Cyanide	01291				

NR-1 Shallow

Clinical Laboratory of San Bernardino, Inc.

1595 N. "D" St., San Bernardino, CA 92405
Phone (714) 885-3216
P. O. Box 329
San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report: FEB 2 9 1991	Lab Sample ID No. 91-0945
Laboratory Name: CLINICAL LAB OF SAN BERNARDINO	Signature of Lab Director: C. Jalliffe
Name of Sampler: Moulton	Sampler Employed By: North American Chemical
Date/Time Sample Collected: 91/02/02/ 12:00	Date/Time Sample Received @ Lab: 91/02/02
	Were Holding Times Observed: Yes
System Name: North American Chemical	System Number:
Description of Sampling Point: I.W.V. Test Well	
Name/No. of Sample Source: Neal Ranch #1 250-270	Station Number:
Date & Time of Sample: 9 1 0 2 0 2 1 2 0 0 (Y Y M M D D T T T T)	Water Type: G/S
	User ID:
	Submitted to SWQIS By:

MCL	REPORTING UNITS	CONSTITUENT	TT	STORET CODE	ANALYSES RESULTS
	Analyzing Agency			28	3761
	Date Analyses Completed			73672	910220 (Y Y M M D D)
5	pC/l	Total Alpha		1501	11.9
	pC/l	Total Alpha Counting Error		1502	1.8
50	pC/l	Total Beta		3501	
	pC/l	Total Beta Counting Error		3502	
	pC/l	Natural Uranium		28012	
3	pC/l	Total Radium 226		9501	
	pC/l	Total Radium 226 Counting Error		9502	
	pC/l	Total Radium 228		11501	
	pC/l	Total Radium 228 Counting Error		11502	
5	pC/l	Ra 226 + Ra 228		11503	
	pC/l	Ra 226 + Ra 228 Counting Error		11504	
20,000	pC/l	Total Tritium		7000	
	pC/l	Total Tritium Counting Error		7001	
8	pC/l	Total Strontium-90		13501	
	pC/l	Total Strontium-90 Counting Error		13502	

NR-1 Shallow

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

TITLE 22 CHEMICAL ANALYSIS

Date of Report: 02/26/91 Sample ID No.910946
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: C. Bellis
Name of Sampler:MOULTON Employed By:PURVEYOR
Date/Time Sample Collected: 91/02/02/1300 Date/Time Sample Received @ Lab: 91/02/02/1300 Date Analyses Completed: 91/02/26

System Name: NORTH AMERICAN CHEMICAL - AKA KERR MCGEE System Number: 36-042
Name or Number of Sample Source: NEAL RANCH #1 1130-1150

Water Type: (G/S) |S| Station Number: 036/042-002
Date/Time of Sample: |91|02|02|1300| (YY MM DD HHMM) User ID: TAN

Analyzing Agency Code: 3761 Date Analysis Completed: |91|02|26| (YY MM DD)
Submitted by:_____ Phone #:_____

Place an 'X' in box to delete all data for this station/date/time. |_|

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS	MCL	DLR
mg/L	Total Hardness (as CaCO3)	00900	310.0		
mg/L	Calcium (Ca)	00916	32.0		
mg/L	Magnesium (Mg)	00927	55.9		30.0
mg/L	Sodium (NA)	00929	1240.0		
mg/L	Potassium (K)	00937	14.6		
Total Cations	Meq/L Value: 60.5				
mg/L	Total Alkalinity (AS CaCO3)	00410	2184.0		
mg/L	Hydroxide (OH)	71830	< 1.0		
mg/L	Carbonate (CO3)	00445	< 1.0		
mg/L	Bicarbonate (HCO3)	00440	2664.5		
mg/L*	Sulfate (SO4)	00945	125.4		
mg/L*	Chloride (Cl)	00940	245.0		
mg/L	Nitrate (as NO3)	71850	35.4	45	
mg/L	Fluoride (F) Temp. Depend.	00951	2.4	****	0.1
Total Anions	Meq/L Value: 53.9				
Std. Units	PH (Laboratory)	00403	9.9		
umho/cm**	Specific Conductance (E.C.)	00095	6000		
mg/L***	Total Filterable Residue at 180C (TDS)	70300	3660.0		
Units	Apparent Color (Unfiltered)	00081	70		
TON	Odor Threshold at 60 C	00086	4.0		1.0
NTU	Lab Turbidity	82079	166.0		
mg/L	MBAS	38260	0.45	0.5	0.02

* 250-500-600 ** 900-1600-2200 *** 500-100-1500 **** 1.4-2.4

NR-1 Medium

PAGE 2 OF 2 910946

* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS		MCL	DLR
ug/L	Arsenic (As)	01002		28	50	10
ug/L	Barium (Ba)	01007	<	100	1000	100
ug/L	Cadmium (Cd)	01027	<	1	10	1
ug/L	Chromium (Total Cr)	01034	<	10	50	10
ug/L	Copper (Cu)	01042	<	50	1000	50
ug/L	Iron (Fe)	01045		750	300	100
ug/L	Lead (Pb)	01051	<	5	50	5
ug/L	Manganese (Mn)	01055		40	50	30
ug/L	Mercury (Hg)	71900	<	1	2	1
ug/L	Selenium (Se)	01147		40	10	5
ug/L	Silver (Ag)	01077	<	10	50	10
ug/L	Zinc (Zn)	01092	<	50	5000	50
ug/L	Aluminum	01105		240	1000	100
	ORGANIC CHEMICALS					
ug/L	Endrin (Hexadrin)	39390			0.2	0.02
ug/L	Gamma-BHC (Lindane)	39340			4	0.4
ug/L	Methoxychlor	39480			100	10.0
ug/L	Toxaphene	39400			5	0.5
ug/L	2,4-D	39730			100	1
ug/L	2,4,5-TP (Silvex) (WEED-B-GON)	39045			10	
	ADDITIONAL ANALYSES					
NTU	Field Turbidity	82078				0.1
C	Source Temperature C	00010				
	Langelier Index Source Temp.	71814				
	Langelier Index at 60 C	71813				
Std. Units	Field PH	00400				
	Agressiveness Index	82383				
mg/L	Silica	00955				
mg/L	Phosphate	00650				
mg/L	Iodide	71865				
	Sodium Absorption Ratio	00931				
	Asbestos	81855				
mg/L	Ammonia (NH3-N)	00612				
mg/L	Nitrite Nitrogen (NO2-N)	00615				
mg/L	Nitrate Nitrogen (NO3-N)	00618				1.0
mg/L	Nitrite (N)	00620				
mg/L	Beryllium	01012				
mg/L	Boron	01020				
mg/L	Thallium	01059				
mg/L	Nickel	01067				
mg/L	Antimony	01097				0.05
mg/L	Lithium	01132				
mg/L	Cyanide	01291				

NR-1 Medium

Clinical Laboratory of San Bernardino, Inc.

1595 N. "D" St., San Bernardino, CA 92405
Phone (714) 885-3216
P. O. Box 329
San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report: FEB 2 9 1991	Lab Sample ID No. 91-0946
Laboratory Name: CLINICAL LAB OF SAN BERNARDINO	Signature of Lab Director: C. Jolley
Name of Sampler: Moulton	Sampler Employed By: North American Chemical
Date/Time Sample Collected: 91/02/02 13:00	Date/Time Sample Received @ Lab: 91/02/02
Were Holding Times Observed: Yes	
System Name: North American Chemical	System Number:
Description of Sampling Point: I.W.V. Test Well	
Name/No. of Sample Source: Neal Ranch #1 1130 - 1150	Station Number:
Date & Time of Sample: 9 1 0 2 0 2 1 1 5 0 (Y Y M M D D T T T T)	Water Type: G/S
User ID:	Submitted to SWQIS By:

MCL	REPORTING UNITS	CONSTITUENT	TT	STORET CODE	ANALYSES RESULTS
		Analyzing Agency		28	3 7 6 1
		Date Analyses Completed		73672	9 1 0 2 2 0 (Y Y M M D D)
5	pC/l	Total Alpha		1501	1 4 2 . 4
	PC/l	Total Alpha Counting Error		1502	2 8 . 7
50	pC/l	Total Beta		3501	
	pC/l	Total Beta Counting Error		3502	
	pC/l	Natural Uranium		28012	
3	pC/l	Total Radium 226		9501	
	pC/l	Total Radium 226 Counting Error		9502	
	pC/l	Total Radium 228		11501	
	pC/l	Total Radium 228 Counting Error		11502	
5	pC/l	Ra 226 + Ra 228		11503	
	pC/l	Ra 226 + Ra 228 Counting Error		11504	
20,000	pC/l	Total Tritium		7000	
	pC/l	Total Tritium Counting Error		7001	
8	pC/l	Total Strontium-90		13501	
	pC/l	Total Strontium-90 Counting Error		13502	

NR-1 Medium

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

TITLE 22 CHEMICAL ANALYSIS

Date of Report: 02/26/91 Sample ID No.910947
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: C. Jolliff
Name of Sampler:MOULTON Employed By:PURVEYOR
Date/Time Sample Collected: 91/02/02/1100 Date/Time Sample Received @ Lab: 91/02/02/1100 Date Analyses Completed: 91/02/26

System Name: NORTH AMERICAN CHEMICAL - AKA KERR MCGEE System Number: 36-042
Name or Number of Sample Source: NEAL RANCH #1 1960-1980

* Water Type: (G/S) |S| Station Number: 036/042-003
* Date/Time of Sample: |91|02|02|1100| (YY MM DD HHMM) User ID: TAN
* Analyzing Agency Code: 3761 Date Analysis Completed: |91|02|26| (YY MM DD)
* Submitted by:_____ Phone #:_____

Place an 'X' in box to delete all data for this station/date/time. |_|

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS	MCL	DLR
mg/L	Total Hardness (as CaCO3)	00900	78.0		
mg/L	Calcium (Ca)	00916	12.8		
mg/L	Magnesium (Mg)	00927	11.2		30.0
mg/L	Sodium (NA)	00929	1340.0		
mg/L	Potassium (K)	00937	6.4		
Total Cations	Meq/L Value: 60.0				
mg/L	Total Alkalinity (AS CaCO3)	00410	2460.0		
mg/L	Hydroxide (OH)	71830	< 1.0		
mg/L	Carbonate (CO3)	00445	< 1.0		
mg/L	Bicarbonate (HCO3)	00440	3001.2		
mg/L*	Sulfate (SO4)	00945	304.8		
mg/L*	Chloride (Cl)	00940	246.7		
mg/L	Nitrate (as NO3)	71850	35.0	45	
mg/L	Fluoride (F) Temp. Depend.	00951	3.3	****	0.1
Total Anions	Meq/L Value: 63.2				
Std. Units	PH (Laboratory)	00403	8.6		
umho/cm**	Specific Conductance (E.C.)	00095	5330.0		
mg/L***	Total Filterable Residue at 180C (TDS)	70300	3251.3		
Units	Apparent Color (Unfiltered)	00081	50		
TON	Odor Threshold at 60 C	00086	2.0		1.0
NTU	Lab Turbidity	82079	32.0		
mg/L	MBAS	38260	0.20	0.5	0.02

* 250-500-600 ** 900-1600-2200 *** 500-100-1500 **** 1.4-2.4

NR-1 Deep

PAGE 2 OF 2 910947

* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS		MCL	DLR
ug/L	Arsenic (As)	01002		130	50	10
ug/L	Barium (Ba)	01007	<	100	1000	100
ug/L	Cadmium (Cd)	01027	<	1	10	1
ug/L	Chromium (Total Cr)	01034	<	10	50	10
ug/L	Copper (Cu)	01042	<	50	1000	50
ug/L	Iron (Fe)	01045		1180	300	100
ug/L	Lead (Pb)	01051	<	5	50	5
ug/L	Manganese (Mn)	01055		30	50	30
ug/L	Mercury (Hg)	71900	<	1	2	1
ug/L	Selenium (Se)	01147		15	10	5
ug/L	Silver (Ag)	01077	<	10	50	10
ug/L	Zinc (Zn)	01092	<	50	5000	50
ug/L	Aluminum	01105		1060	1000	100
	ORGANIC CHEMICALS					
ug/L	Endrin (Hexadrin)	39390			0.2	0.02
ug/L	Gamma-BHC (Lindane)	39340			4	0.4
ug/L	Methoxychlor	39480			100	10.0
ug/L	Toxaphene	39400			5	0.5
ug/L	2,4-D	39730			100	10
ug/L	2,4,5-TP (Silvex) (WEED-B-GON)	39045			10	
	ADDITIONAL ANALYSES					
NTU	Field Turbidity	82078				0.1
C	Source Temperature C	00010				
	Langelier Index Source Temp.	71814				
	Langelier Index at 60 C	71813				
Std. Units	Field PH	00400				
	Agressiveness Index	82383				
mg/L	Silica	00955				
mg/L	Phosphate	00650				
mg/L	Iodide	71865				
	Sodium Absorption Ratio	00931				
	Asbestos	81855				
mg/L	Ammonia (NH3-N)	00612				
mg/L	Nitrite Nitrogen (NO2-N)	00615				
mg/L	Nitrate Nitrogen (NO3-N)	00618				1.0
mg/L	Nitrite (N)	00620				
mg/L	Beryllium	01012				
mg/L	Boron	01020				
mg/L	Thallium	01059				
mg/L	Nickel	01067				
mg/L	Antimony	01097				0.05
mg/L	Lithium	01132				
mg/L	Cyanide	01291				

NR-1 Deep

Clinical Laboratory of San Bernardino, Inc.

1595 N. "D" St., San Bernardino, CA 92405
Phone (714) 885-3216
P. O. Box 329
San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report: FEB 2 0 1991	Lab Sample ID No. 91-0947
Laboratory Name: CLINICAL LAB OF SAN BERNARDINO	Signature of Lab Director: C. Jolley
Name of Sampler: Moulton	Sampler Employed By: North American Chemical
Date/Time Sample Collected: 91/02/02 11:00	Date/Time Sample Received @ Lab: 91/02/02
	Were Holding Times Observed: Yes
System Name: North American Chemical	System Number:
Description of Sampling Point: I.W.V. Test Well	
Name/No. of Sample Source: Near Ranch #1 1960 - 1980	Station Number:
Date & Time Sample: 9 1 0 2 0 2 1 1 0 0 (Y Y M M D D T T T T)	Water Type: G/S
	User ID:
	Submitted to SWQIS By:

MCL	REPORTING UNITS	CONSTITUENT	TT	STORET CODE	ANALYSES RESULTS
	Analyzing Agency			28	3761
	Date Analyses Completed			73672	910220 (Y Y M M D D)
5	pC/l	Total Alpha		1501	3.9
	PC/l	Total Alpha Counting Error		1502	5.2
50	pC/l	Total Beta		3501	
	pC/l	Total Beta Counting Error		3502	
	pC/l	Natural Uranium		28012	
3	pC/l	Total Radium 226		9501	
	pC/l	Total Radium 226 Counting Error		9502	
	pC/l	Total Radium 228		11501	
	pC/l	Total Radium 228 Counting Error		11502	
5	pC/l	Ra 226 + Ra 228		11503	
	pC/l	Ra 226 + Ra 228 Counting Error		11504	
20,000	pC/l	Total Tritium		7000	
	pC/l	Total Tritium Counting Error		7001	
8	pC/l	Total Strontium-90		13501	
	pC/l	Total Strontium-90 Counting Error		13502	

Clinical Laboratory of San Bernardino, Inc.

P. O. Box 329
1595 North "D" Street
San Bernardino, California 92405
(714) 885-3216

PURVEYOR: INDIAN WELLS VALLEY WATER SAMPLE I.D.#: 911534

STREET ADDRESS: DATE OF REPORT: 3/6/91

CITY,STATE,ZIP:

DESCRIPTION OF SAMPLING POINT: NEAL RANCH #2 330-350 upper

DATE/TIME COLLECTED: 2/26/91 0900 NAME OF SAMPLER: MOULTON

	RESULTS	MCL
TOTAL HARDNESS	241.2 mg/L	
CALCIUM HARDNESS	136.8 mg/L	
LCIUM	54.8 mg/L	
..GNESIUM	25.4 mg/L	
SODIUM	201.4 mg/L	
POTASSIUM	6.2 mg/L	
TOTAL ALKALINITY	295.6 mg/L	
HYDROXIDE	< 1.0 mg/L	
CARBONATE	< 1.0 mg/L	
BICARBONATE	360.6 mg/L	
SULFATE	232.8 mg/L	
CHLORIDE	85.0 mg/L	
NITRATE	25.6 mg/L	45
FLUORIDE	0.8 mg/L	
TOTAL ANIONS	13.61 mEq/L	
TOTAL CATIONS	13.73 mEq/L	
RPD ANIONS/CATIONS	0.60 PERCENT	
pH	8.3 STD UNITS	
E.C.	1370.0 umho/cm	
TDS	808.3 mg/L	
MBAS	< 0.02 mg/L	

	RESULTS	MCL
MANGANESE	50 ug/L	50
COPPER	< 50 ug/l	1000
IRON	< 100 ug/L	300
ZINC	< 50 ug/L	5000
BARIUM	< 100 ug/L	1000
CHROMIUM	< 10 ug/L	50
CADMIUM	< 1 ug/L	10
LEAD	12 ug/l	50
ALUMINUM	< 100 ug/L	1000
MERCURY	< 1 ug/l	2
ARSENIC	< 10 ug/L	50
SELENIUM	10 ug/L	100
SILVER	< 10 ug/L	50
COLOR	< 3	
ODOR	1	
TURBIDITY	0.5 NTU	

.TE(S) RECEIVED: 2/28/91 STARTED: 2/28/91 COMPLETED: 3/6/91

ALL ANALYSES ARE PERFORMED IN ACCORDANCE WITH APHA'S STANDARD METHODS, (17TH EDITION) OR EPA'S METHODS FOR CHEMICAL ANALYSIS OF WATER AND WASTE

ANALYST:_____ DIRECTOR: C. Jolley

NR-2 Shall

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO,CA 92405

RADIOACTIVITY ANALYSIS

Date of Report: 03/08/91 Sample ID No.91-1534
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: C. Jolley
Name of Sampler:MOULTON Employed By:INDIAN WELLS VALLEY CWD
Date/Time Sample Collected: 91/02/26/0900 Date/Time Sample Received @ Lab: 91/02/26/0900 Date Analyses Completed: 91/03/08

System Name: INDIAN WELLS VALLEY CWD - RIDGECREST System Number: 15-017
Name or Number of Sample Source: WELL 25 (NEAL 02) 330 - 350 (TEST WELL)

Water Type: (G/S) !G! Station Number: 25S/39E-31C01 M
Date/Time of Sample: !91!02!26!0900! User ID: CYA
YY MM DD HHMM

Analyzing Agency Code: 3761 Date Analysis Completed: !91!03!08!
YY MM DD
Submitted by:_____ Phone #:_____

Place an 'X' in box to delete all data for this station/date/time. [ ]

MCL	REPORT UNITS	CONSTITUENT	STORET CODE	ANALYSES RESULTS	DLR
15	pC/l	Total Alpha	01501	13.6	
	pC/l	Total Alpha Counting Error	01502	3.2	
50	pC/l	Total Beta	03501		4.0
	pC/l	Total Beta Counting Error	03502		
20	pC/l	Natural Uranium	28012		2.0
	pC/l	Total Radium 226	09501		.5
	pC/l	Total Radium 226 Counting Error	09502		
	pC/l	Total Radium 228	11501		.5
	pC/l	Total Radium 228 Counting Error	11502		
5	pC/l	Ra 226 + Ra 228	11503		
	pC/l	Ra 226 + Ra 228 Counting Error	11504		
000	pC/l	Total Tritium	07000		1.0
	pC/l	Total Tritium Counting Error	07001		
8	pC/l	Total Strontium - 90	13501		2.0
	pC/l	Total Strontium - 90 Counting Error	13502		
	pC/l	Total Radon 222 Counting Error	82302		
	pC/l	Total Radon 222	82303		100.0

Clinical Laboratory of San Bernardino, Inc.

P. O. Box 329
1595 North "D" Street
San Bernardino, California 92405
(714) 885-3216

PURVEYOR: INDIAN WELLS VALLEY WATER SAMPLE I.D.#: 911535

STREET ADDRESS: DATE OF REPORT: 3/6/91

CITY,STATE,ZIP:

DESCRIPTION OF SAMPLING POINT: NEAL RANCH #2 1540-1560 mid

DATE/TIME COLLECTED: 2/26/91 0800 NAME OF SAMPLER: MOULTON

	RESULTS	MCL
TOTAL HARDNESS	457.2 mg/L	
CALCIUM HARDNESS	285.2 mg/L	
CALCIUM	114.2 mg/L	
MAGNESIUM	41.8 mg/L	
SODIUM	272.3 mg/L	
POTASSIUM	4.5 mg/L	
TOTAL ALKALINITY	310.0 mg/L	
HYDROXIDE	< 1.0 mg/L	
CARBONATE	< 1.0 mg/L	
BICARBONATE	378.2 mg/L	
SULFATE	467.7 mg/L	
CHLORIDE	159.9 mg/L	
NITRATE	107.1 mg/L	45
FLUORIDE	1.1 mg/L	
TOTAL ANIONS	22.23 mEq/L	
TOTAL CATIONS	21.09 mEq/L	
RPD ANIONS/CATIONS	3.55 PERCENT	
pH	8.0 STD UNITS	
E.C.	2240.0 umho/cm	
TDS	1366.8 mg/L	
MBAS	< 0.02 mg/L	

	RESULTS	MCL
MANGANESE	< 30 ug/L	50
COPPER	< 50 ug/l	1000
IRON	< 100 ug/L	300
ZINC	< 50 ug/L	5000
BARIUM	< 100 ug/L	1000
CHROMIUM	< 10 ug/L	50
CADMIUM	< 1 ug/L	10
LEAD	< 5 ug/l	50
ALUMINUM	< 100 ug/L	1000
MERCURY	< 1 ug/l	2
ARSENIC	12 ug/L	50
SELENIUM	60 ug/L	100
SILVER	< 10 ug/L	50
COLOR	< 3	
ODOR	1	
TURBIDITY	1.2 NTU	

DATE(S) RECEIVED: 2/28/91 STARTED: 2/28/91 COMPLETED: 3/6/91

ALL ANALYSES ARE PERFORMED IN ACCORDANCE WITH APHA'S STANDARD METHODS, (17TH EDITION) OR EPA'S METHODS FOR CHEMICAL ANALYSIS OF WATER AND WASTE

ANALYST: _____ DIRECTOR: C. Dallis

NB-2 Medium

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO,CA 92405

RADIOACTIVITY ANALYSIS

Date of Report: 03/08/91 Sample ID No.91-1535
Laboratory Name: CLINICAL LABORATORIES OF SAN BERNARDINO Signature Lab Director: C. Jolley
Name of Sampler:MOULTON Employed By:INDIAN WELLS VALLEY CWD
Date/Time Sample Collected: 91/02/26/0800 Date/Time Sample Received @ Lab: 91/02/26/0800 Date Analyses Completed: 91/03/08

System Name: INDIAN WELLS VALLEY CWD - RIDGECREST System Number: 15-017
Name or Number of Sample Source: WELL 25 (NEAL 02) 1540 - 1560 (TEST WELL)

Water Type: (G/S) |S| Station Number: 25S/39E-31C01 M
Date/Time of Sample: |91|02|26|0800| User ID: CYA
YY MM DD HHMM

Analyzing Agency Code: 3761 Date Analysis Completed: |91|03|08|
YY MM DD

Submitted by:_____ Phone #:_____

Place an 'X' in box to delete all data for this station/date/time. |_|

MCL	REPORT UNITS	CONSTITUENT	STORET CODE	ANALYSES RESULTS	DLR
15	pC/l	Total Alpha	01501	53.6	
	pC/l	Total Alpha Counting Error	01502	5.0	
50	pC/l	Total Beta	03501		4.0
	pC/l	Total Beta Counting Error	03502	-	
20	pC/l	Natural Uranium	28012		2.0
	pC/l	Total Radium 226	09501		.5
	pC/l	Total Radium 226 Counting Error	09502		
	pC/l	Total Radium 228	11501		.5
	pC/l	Total Radium 228 Counting Error	11502		
5	pC/l	Ra 226 + Ra 228	11503		
	pC/l	Ra 226 + Ra 228 Counting Error	11504		
20	pC/l	Total Tritium	07000		1.0
	pC/l	Total Tritium Counting Error	07001		
8	pC/l	Total Strontium - 90	13501		2.0
	pC/l	Total Strontium - 90 Counting Error	13502		
	pC/l	Total Radon 222 Counting Error	82302		
	pC/l	Total Radon 222	82303		100.0

Clinical Laboratory of San Bernardino, Inc.

P. O. Box 329
1595 North "D" Street
San Bernardino, California 92405
(714) 885-3216

PURVEYOR: INDIAN WELLS VALLEY WATER SAMPLE I.D.#: 911536

STREET ADDRESS: DATE OF REPORT: 3/6/91

CITY,STATE,ZIP:

DESCRIPTION OF SAMPLING POINT: NEAL RANCH #2 1910-1930 Lower

DATE/TIME COLLECTED: 2/26/91 1000 NAME OF SAMPLER: MOULTON

	RESULTS		MCL
TOTAL HARDNESS	143.6	mg/L	
CALCIUM HARDNESS	42.8	mg/L	
CALCIUM	17.1	mg/L	
MAGNESIUM	24.5	mg/L	
SODIUM	1296.0	mg/L	
POTASSIUM	11.3	mg/L	
TOTAL ALKALINITY	2112.0	mg/L	
HYDROXIDE	< 1.0	mg/L	
CARBONATE	< 1.0	mg/L	
BICARBONATE	2576.6	mg/L	
SULFATE	236.4	mg/L	
CHLORIDE	230.6	mg/L	
NITRATE	38.2	mg/L	45
FLUORIDE	3.0	mg/L	
TOTAL ANIONS	54.43	mEq/L	
TOTAL CATIONS	59.50	mEq/L	
RPD ANIONS/CATIONS	5.84	PERCENT	
pH	8.4	STD UNITS	
E.C.	5330.0	umho/cm	
TDS	3304.6	mg/L	
MBAS	< 0.02	mg/L	

	RESULTS		MCL
MANGANESE	80	ug/L	50
COPPER	< 50	ug/l	1000
IRON	250	ug/L	300
ZINC	< 50	ug/L	5000
BARIUM	< 100	ug/L	1000
CHROMIUM	< 10	ug/L	50
CADMIUM	< 1	ug/L	10
LEAD	< 5	ug/l	50
ALUMINUM	< 100	ug/L	1000
MERCURY	< 1	ug/l	2
ARSENIC	460	ug/L	50
SELENIUM	20	ug/L	100
SILVER	< 10	ug/L	50
COLOR	15		
ODOR	3		
TURBIDITY	4.5	NTU	

DATE(S) RECEIVED: 2/28/91 STARTED: 2/28/91 COMPLETED: 3/6/91

ALL ANALYSES ARE PERFORMED IN ACCORDANCE WITH APHA'S STANDARD METHODS, (17TH EDITION) OR EPA'S METHODS FOR CHEMICAL ANALYSIS OF WATER AND WASTE

ANALYST:_____ DIRECTOR: C. Jolley NR-2 Deep

CLINICAL LABS/SAN BERNARDINO
1593 NORTH "D" STREET
SAN BERNARDINO,CA 92405

RADIOACTIVITY ANALYSIS

Date of Report: 03/08/91 Sample ID No.91-1536
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: C. Jolley
Name of Sampler:MOULTON Employed By:INDIAN WELLS VALLEY CWD
Date/Time Sample Collected: 91/02/26/1000 Date/Time Sample Received @ Lab: 91/02/26/1000 Date Analyses Completed: 91/03/08

System Name: INDIAN WELLS VALLEY CWD - RIDGECREST System Number: 15-017
Name or Number of Sample Source: WELL 25 (NEAL 02) 1910 - 1930 (TEST WELL)

Water Type: (G/S) !G! Station Number: 25S/39E-31C01 M
Date/Time of Sample: !91!02!26!1000! User ID: CYA
YY MM DD HHMM

Analyzing Agency Code: 3761 Date Analysis Completed: !91!03!08!
YY MM DD

Submitted by:_____ Phone #:_____

Place an 'X' in box to delete all data for this station/date/time. [ ]

MCL	REPORT UNITS	CONSTITUENT	STORET CODE	ANALYSES RESULTS	DLR
15	pC/l	Total Alpha	01501	24.3	
	pC/l	Total Alpha Counting Error	01502	4.5	
50	pC/l	Total Beta	03501		4.0
	pC/l	Total Beta Counting Error	03502		
20	pC/l	Natural Uranium	28012		2.0
	pC/l	Total Radium 226	09501		.5
	pC/l	Total Radium 226 Counting Error	09502		
	pC/l	Total Radium 228	11501		.5
	pC/l	Total Radium 228 Counting Error	11502		
5	pC/l	Ra 226 + Ra 228	11503		
	pC/l	Ra 226 + Ra 228 Counting Error	11504		
20000	pC/l	Total Tritium	07000		1.0
	pC/l	Total Tritium Counting Error	07001		
8	pC/l	Total Strontium - 90	13501		2.0
	pC/l	Total Strontium - 90 Counting Error	13502		
	pC/l	Total Radon 222 Counting Error	82302		
	pC/l	Total Radon 222	82303		100.0

CLINICAL\LABS SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

GENERAL MINERAL & PHYSICAL, INORGANIC, & RADIOLOGICAL CHEMICAL ANALYSIS

Date of Report: 10/25/91 Sample ID No.91-9450
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director:
Name of Sampler:MIKE C. Employed By:ROTTMAN DRILLING CO.

Date/Time Sample Collected:	Date/Time Sample Received @ Lab:	Date Analyses Completed:
91/10/17/2350	91/10/21/1700	91/10/25

System Name: INDIAN WELLS VALLEY CWD - RIDGECREST
System Number: 15-017
Name or Number of Sample Source: W32 P-1 (380') (This sample was filtered)

User ID: CYA
Station Number: 000/000-00X00 2
Date/Time of Sample: |91|10|17|2350| (YY MM DD TTTT)
Laboratory Code: 3761
Date Analysis Completed: |91|10|25| (YY MM DD)
Submitted by:_____ Phone #:_____

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DLR
	mg/L	Total Hardness (as CaCO3)	00900	86.0	
	mg/L	Calcium (Ca)	00916	24.0	
	mg/L	Magnesium (Mg)	00927	6.3	
	mg/L	Sodium (Na)	00929	60.0	
	mg/L	Potassium (K)	00937	4.6	
Total Cations	Meq/L	Value: 4.4			
	mg/L	Total Alkalinity (AS CaCO3)	00410	104.0	
	mg/L	Hydroxide (OH)	71830	< 1.0	
	mg/L	Carbonate (CO3)	00445	< 1.0	
	mg/L	Bicarbonate (HCO3)	00440	126.9	
*	mg/L*	Sulfate (SO4)	00945	57.0	
*	mg/L*	Chloride (Cl)	00940	40.2	
45	mg/L	Nitrate (as NO3)	71850	7.2	
****	mg/L	Fluoride (F) Temp. Depend.	00951	1.1	0.1
Total Anions	Meq/L	Value: 4.6			
	Std. Units	PH (Laboratory)	00403	8.6	
**	umho/cm**	Specific Conductance (E.C.)	00095	450.0	
***	mg/L***	Total Filterable Residue at 180C (TDS)	70300	252.4	
	Units	Apparent Color (Unfiltered)	00081	< 3.0	
	TON	Odor Threshold at 60 C	00086	1.0	
	NTU	Lab Turbidity	82079	0.9	
0.5	mg/L	MBAS	38260	< 0.02	

* 250-500-600 ** 900-1600-2200 *** 500-1000-1500 **** 1.4-2.4

MW-32 Shallow

PAGE 2 OF 2 INORGANIC CHEMICALS 91-9450

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	R
1000	ug/L	Aluminum (Al)	01105	170.00	100.(
50	ug/L	Arsenic (As)	01002	26.00	10.(
1000	ug/L	Barium (Ba)	01007	<100.00	100.(
10	ug/L	Cadmium (Cd)	01027	< 1.00	1.(
50	ug/L	Chromium (Total Cr)	01034	< 10.00	10.(
1000	ug/L	Copper (Cu)	01042	< 50.00	50.(
300	ug/L	Iron (Fe)	01045	<100.00	100.(
50	ug/L	Lead (Pb)	01051	< 5.00	5.(
50	ug/L	Manganese (Mn)	01055	50.00	30.(
2	ug/L	Mercury (Hg)	71900	< 1.00	1.(
10	ug/L	Selenium (Se)	01147	< 5.00	5.(
50	ug/L	Silver (Ag)	01077	< 10.00	10.
5000	ug/L	Zinc (Zn)	01092	< 50.00	50.
		RADIOACTIVITY ANALYSIS			
15	PCi/L	Total Alpha	01501		
	PCi/L	Total Alpha Counting Error	01502		
50	PCi/L	Total Beta	03501		4.(
	PCi/L	Total Beta Counting Error	03502		
20	PCi/L	Natural Uranium	28012		2.
	PCi/L	Total Radium 226	09501		0.
	PCi/L	Total Radium 226 Counting Error	09502		
	PCi/L	Total Radium 228	11501		.
	PCi/L	Total Radium 228 Counting Error	11502		
5	PCi/L	Ra 226 + Ra 228	11503		
	PCi/L	Ra 226 + Ra 228 Counting Error	11504		
	PCi/L	Radon 222	82303		100.
	PCi/L	Radon 222 Counting Error	82302		
20000	PCi/L	Total Tritium	07000		1.
	PCi/L	Total Tritium Counting Error	07001		
8	PCi/L	Total Strontium - 90	13501		2.
	PCi/L	Total Strontium - 90 Counting Error	13502		
		ADDITIONAL ANALYSES			
	NTU	Field Turbidity	82078		0.
	C	Source Temperature C	00010		
		Langelier Index Source Temp.	71814		
		Langelier Index at 60 C	71813		
	Std. Units	Field PH	00400		
		Agressiveness Index	82383		
	mg/L	Silica	00955		
	mg/L	Phosphate	00650		
	mg/L	Icdide	71865		
		Sodium Absorption Ratio	00931		
		Asbestos	81855		
	mg/L	Boron	01020		

MW-32 Shallow

Clinical Laboratory of San Bernardino, Inc.

P. O. Box 329
1595 North "D" Street
San Bernardino, California 92405
(714) 885-3216

PURVEYOR: KRIEGER AND STEWART (IWVWD) SAMPLE I.D.#: 91-9450

STREET ADDRESS: DATE OF REPORT:

CITY,STATE,ZIP: ANALYSING AGENCY: 3761

DESCRIPTION OF SAMPLING POINT: W 32 P-1 (380') (SUPERNATE AFTER SETTLEING)

DATE/TIME COLLECTED: 10/17/91 23:50 NAME OF SAMPLER: UNKNOWN

CONSTITUENT	RESULTS	UNITS	MCL
SILVER	< 10	ug/L	50
ARSENIC	17	ug/L	50
ALUMINUM	705	ug/L	1000
SELENIUM	< 5	ug/L	10
CHROMIUM	< 10	ug/L	50
CADMIUM	< 1	ug/L	2
LEAD	17	ug/L	50
BARIUM	< 100	ug/L	1000
MERCURY	< 1	ug/L	2
IRON	1970	ug/L	300
MANGANESE	280	ug/L	50
ZINC	80	µg/L	5000

DATE(S) RECEIVED: 10/21/91 STARTED: 10/21/91 COMPLETED: 10/28/91

ALL ANALYSES ARE PERFORMED IN ACCORDANCE WITH APHA'S STANDARD METHODS, (17TH EDITION) OR EPA'S METHODS FOR CHEMICAL ANALYSIS OF WATER AND WASTE

ANALYST: DIRECTOR: Mehdi Zamani

Clinical Laboratory of San Bernardino, Inc.

P. O. Box 329
1595 North "D" Street
San Bernardino, California 92405
(714) 885-3216

PURVEYOR: KRIEGER AND STEWART (IWVWD) SAMPLE I.D.#: 91-9450

STREET ADDRESS: DATE OF REPORT:

CITY,STATE,ZIP: ANALYSING AGENCY: 3761

DESCRIPTION OF SAMPLING POINT: W 32 P-1 (380') (SAMPLE MIXED AND DIGESTED)

DATE/TIME COLLECTED: 10/17/91 23:50 NAME OF SAMPLER: UNKNOWN

CONSTITUENT	RESULTS	UNITS	MCL
SILVER	< 10	ug/L	50
ARSENIC	65	ug/L	50
ALUMINUM	19530	ug/L	1000
SELENIUM	6	ug/L	10
CHROMIUM	75	ug/L	50
CADMIUM	1.2	ug/L	2
LEAD	28	ug/L	50
BARIUM	180	ug/L	1000
MERCURY	< 1	ug/L	2
IRON	30400	ug/L	300
MANGANESE	520	ug/L	50
ZINC	220	µg/L	5000

DATE(S) RECEIVED: 10/21/91 STARTED: 10/21/91 COMPLETED: 10/28/91

ALL ANALYSES ARE PERFORMED IN ACCORDANCE WITH APHA'S STANDARD METHODS, (17TH EDITION) OR EPA'S METHODS FOR CHEMICAL ANALYSIS OF WATER AND WASTE

ANALYST: DIRECTOR: Melvin Swim

CLINICAL\LABS SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

GENERAL MINERAL & PHYSICAL, INORGANIC, & RADIOLOGICAL CHEMICAL ANALYSIS

Date of Report: 10/25/91 Sample ID No.91-9451
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: Carol Jolley
Name of Sampler:LEROY JONES"DRILLER" Employed By:ROTTMAN DRILLING CO.
Date/Time Sample Collected: 91/10/18/2400 Date/Time Sample Received @ Lab: 91/10/21/1700 Date Analyses Completed: 91/10/25

System Name: INDIAN WELLS VALLEY CWD - RIDGECREST System Number: 15-017
Name or Number of Sample Source: W32 P-2 (900')

* User ID: CYA Station Number: 000/000-00X00 3 *
* Date/Time of Sample: |91|10|18|2400| (YY MM DD TTTT) Laboratory Code: 3761 *
* Date Analysis Completed: |91|10|25| (YY MM DD) *
* Submitted by:_____ Phone #:_____ *

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DLR
	mg/L	Total Hardness (as CaCO3)	00900	35.2	
	mg/L	Calcium (Ca)	00916	10.4	
	mg/L	Magnesium (Mg)	00927	2.2	
	mg/L	Sodium (Na)	00929	49.2	
	mg/L	Potassium (K)	00937	3.7	
Total Cations		Meq/L Value: 2.9			
	mg/L	Total Alkalinity (AS CaCO3)	00410	84.0	
	mg/L	Hydroxide (OH)	71830	< 1.0	
	mg/L	Carbonate (CO3)	00445	< 1.0	
	mg/L	Bicarbonate (HCO3)	00440	102.5	
*	mg/L*	Sulfate (SO4)	00945	24.3	
*	mg/L*	Chloride (Cl)	00940	23.3	
45	mg/L	Nitrate (as NO3)	71850	16.9	
****	mg/L	Fluoride (F) Temp. Depend.	00951	0.8	0.1
Total Anions		Meq/L Value: 3.2			
	Std. Units	PH (Laboratory)	00403	8.3	
**	umho/cm**	Specific Conductance (E.C.)	00095	330.0	
***	mg/L***	Total Filterable Residue at 180C (TDS)	70300	172.8	
	Units	Apparent Color (Unfiltered)	00081	< 70.0	
	TON	Odor Threshold at 60 C	00086	3.0	
	NTU	Lab Turbidity	82079	20.0	
0.5	mg/L	MBAS	38260	< 0.02	

* 250-500-600 ** 900-1600-2200 *** 500-1000-1500 **** 1.4-2.4

MW-32 Shal Me

PAGE 2 OF 2 INORGANIC CHEMICALS 91-9451

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	
1000	ug/L	Aluminum (Al)	01105	120.00	100.0
50	ug/L	Arsenic (As)	01002	36.00	10.0
1000	ug/L	Barium (Ba)	01007	<100.00	100.0
10	ug/L	Cadmium (Cd)	01027	< 1.00	1.0
50	ug/L	Chromium (Total Cr)	01034	< 10.00	10.0
1000	ug/L	Copper (Cu)	01042	< 50.00	50.0
300	ug/L	Iron (Fe)	01045	1880.0	100.0
50	ug/L	Lead (Pb)	01051	< 5.00	5.0
50	ug/L	Manganese (Mn)	01055	< 30.00	30.0
2	ug/L	Mercury (Hg)	71900	< 1.00	1.0
10	ug/L	Selenium (Se)	01147	< 5.00	5.0
50	ug/L	Silver (Ag)	01077	< 10.00	10.0
5000	ug/L	Zinc (Zn)	01092	< 50.00	50.0
		RADIOACTIVITY ANALYSIS			
15	PCi/L	Total Alpha	01501		
	PCi/L	Total Alpha Counting Error	01502		
50	PCi/L	Total Beta	03501		4.0
	PCi/L	Total Beta Counting Error	03502		
20	PCi/L	Natural Uranium	28012		2.0
	PCi/L	Total Radium 226	09501		0.5
	PCi/L	Total Radium 226 Counting Error	09502		
	PCi/L	Total Radium 228	11501		.5
	PCi/L	Total Radium 228 Counting Error	11502		
5	PCi/L	Ra 226 + Ra 228	11503		
	PCi/L	Ra 226 + Ra 228 Counting Error	11504		
	PCi/L	Radon 222	82303		100.0
	PCi/L	Radon 222 Counting Error	82302		
20000	PCi/L	Total Tritium	07000		1.0
	PCi/L	Total Tritium Counting Error	07001		
8	PCi/L	Total Strontium - 90	13501		2.0
	PCi/L	Total Strontium - 90 Counting Error	13502		
		ADDITIONAL ANALYSES			
	NTU	Field Turbidity	82078		0.1
	C	Source Temperature C	00010		
		Langelier Index Source Temp.	71814		
		Langelier Index at 60 C	71813		
	Std. Units	Field PH	00400		
		Agressiveness Index	82383		
	mg/L	Silica	00955		
	mg/L	Phosphate	00650		
	mg/L	Iodide	71865		
		Sodium Absorption Ratio	00931		
		Asbestos	81855		
	mg/L	Boron	01020		

MW-32 Shal Med

Clinical Laboratory of San Bernardino, Inc.

P. O. Box 329
1595 North "D" Street
San Bernardino, California 92405
(714) 885-3216

PURVEYOR: KREIGER & STEWART (IWVWD) SAMPLE I.D.#: 91-9451

STREET ADDRESS: DATE OF REPORT: 11/6/91

CITY,STATE,ZIP:

DESCRIPTION OF SAMPLING POINT: W 32 P-2 (900') ** FILTERED **

DATE/TIME COLLECTED: 10/18/91 14:00 NAME OF SAMPLER: UNKNOWN

GENERAL MINERAL	RESULTS	UNITS	MCL
TOTAL HARDNESS	33.2	mg/L	
CALCIUM HARDNESS	26.4	mg/L	
CALCIUM	10.6	mg/L	
MAGNESIUM	1.7	mg/L	
SODIUM	48.2	mg/L	
POTASSIUM	3.3	mg/L	
TOTAL ALKALINITY	82.0	mg/L	
HYDROXIDE	< 1.0	mg/L	
CARBONATE	< 1.0	mg/L	
BICARBONATE	100.0	mg/L	
SULFATE	24.0	mg/L	
CHLORIDE	22.4	mg/L	
NITRATE	16.7	mg/L	45
FLUORIDE	0.8	mg/L	
TOTAL ANIONS	3.1	mEq/L	
TOTAL CATIONS	2.8	mEq/L	
RPD ANIONS/CATIONS	2.0	PERCENT	
pH	8.1	STD UNITS	
E.C.	330.0	umho/cm	
TDS	168.6	mg/L	
MBAS	< 0.02	mg/L	

G.M. CONT	RESULTS	UNITS	MCL
MANGANESE	< 30	ug/L	50
COPPER	< 50	ug/l	1000
IRON	1210	ug/L	300
ZINC	< 50	ug/L	5000

INORGANICS	RESULTS	UNITS	MCL
BARIUM	< 100	ug/L	1000
CHROMIUM	< 10	ug/L	50
CADMIUM	< 1	ug/L	10
LEAD	< 5	ug/l	50
ALUMINUM	< 100	ug/L	1000
MERCURY	< 1	ug/l	2
ARSENIC	25	ug/L	50
SELENIUM	≤ 5	ug/L	100
SILVER	< 10	ug/L	50

DATE(S) RECEIVED: 10/21/91 STARTED: 11/1/91 COMPLETED: 11/5/91

ALL ANALYSES ARE PERFORMED IN ACCORDANCE WITH APHA'S STANDARD METHODS, (17TH EDITION) OR EPA'S METHODS FOR CHEMICAL ANALYSIS OF WATER AND WASTE

ANALYST:_____ DIRECTOR: Carol Jellison

CLINICAL\LABS SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

GENERAL MINERAL & PHYSICAL, INORGANIC, & RADIOLOGICAL CHEMICAL ANALYSIS

Date of Report: 10/25/91 Sample ID No.91-9499
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director:
Name of Sampler:MICHAEL Employed By:ROTTMAN DRILLING CO.

Date/Time Sample Collected: 91/10/21/0300	Date/Time Sample Received @ Lab: 91/10/23/1700	Date Analyses Completed: 91/10/25

System Name: INDIAN WELLS VALLEY CWD - RIDGECREST
System Number: 15-017
Name or Number of Sample Source: W32 P-3 (1200 FT.)

User ID: CYA
Station Number: 000/000-00X00 5
Date/Time of Sample: |91|10|21|0300| (YY MM DD TTTT)
Laboratory Code: 3761
Date Analysis Completed: |91|10|25| (YY MM DD)
Submitted by:_____ Phone #:_____

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DLR
	mg/L	Total Hardness (as CaCO3)	00900	28.0	
	mg/L	Calcium (Ca)	00916	5.6	
	mg/L	Magnesium (Mg)	00927	3.4	
	mg/L	Sodium (Na)	00929	59.2	
	mg/L	Potassium (K)	00937	2.0	
Total Cations	Meq/L	Value: 3.2			
	mg/L	Total Alkalinity (AS CaCO3)	00410	90.0	
	mg/L	Hydroxide (OH)	71830	< 1.0	
	mg/L	Carbonate (CO3)	00445	< 1.0	
	mg/L	Bicarbonate (HCO3)	00440	109.8	
*	mg/L*	Sulfate (SO4)	00945	22.6	
*	mg/L*	Chloride (Cl)	00940	26.1	
45	mg/L	Nitrate (as NO3)	71850	14.8	
****	mg/L	Fluoride (F) Temp. Depend.	00951	0.6	0.1
Total Anions	Meq/L	Value: 3.3			
	Std. Units	PH (Laboratory)	00403	8.5	
**	umho/cm**	Specific Conductance (E.C.)	00095	340.0	
***	mg/L***	Total Filterable Residue at 180C (TDS)	70300	179.3	
	Units	Apparent Color (Unfiltered)	00081	< 70.0	
	TON	Odor Threshold at 60 C	00086	4.0	
	NTU	Lab Turbidity	82079	25.0	
0.5	mg/L	MBAS	38260	< 0.02	

* 250-500-600 ** 900-1600-2200 *** 500-1000-1500 **** 1.4-2.4

MW-32 Deep Med

PAGE 2 OF 2 INORGANIC CHEMICALS 91-9499

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	R
1000	ug/L	Aluminum (Al)	01105	130.00	100.(
50	ug/L	Arsenic (As)	01002	17.00	10.(
1000	ug/L	Barium (Ba)	01007	<100.00	100.(
10	ug/L	Cadmium (Cd)	01027	< 1.00	1.(
50	ug/L	Chromium (Total Cr)	01034	< 10.00	10.(
1000	ug/L	Copper (Cu)	01042	< 50.00	50.(
300	ug/L	Iron (Fe)	01045	4150.0	100.(
50	ug/L	Lead (Pb)	01051	< 5.00	5.(
50	ug/L	Manganese (Mn)	01055	100.00	30.(
2	ug/L	Mercury (Hg)	71900	< 1.00	1.(
10	ug/L	Selenium (Se)	01147	< 5.00	5.(
50	ug/L	Silver (Ag)	01077	< 10.00	10.(
5000	ug/L	Zinc (Zn)	01092	< 50.00	50.(
		RADIOACTIVITY ANALYSIS			
15	PCi/L	Total Alpha	01501		
	PCi/L	Total Alpha Counting Error	01502		
50	PCi/L	Total Beta	03501		4.(
	PCi/L	Total Beta Counting Error	03502		
20	PCi/L	Natural Uranium	28012		2.(
	PCi/L	Total Radium 226	09501		0.(
	PCi/L	Total Radium 226 Counting Error	09502		
	PCi/L	Total Radium 228	11501		
	PCi/L	Total Radium 228 Counting Error	11502		
5	PCi/L	Ra 226 + Ra 228	11503		
	PCi/L	Ra 226 + Ra 228 Counting Error	11504		
	PCi/L	Radon 222	82303		100.(
	PCi/L	Radon 222 Counting Error	82302		
20000	PCi/L	Total Tritium	07000		1.(
	PCi/L	Total Tritium Counting Error	07001		
8	PCi/L	Total Strontium - 90	13501		2.(
	PCi/L	Total Strontium - 90 Counting Error	13502		
		ADDITIONAL ANALYSES			
	NTU	Field Turbidity	82078		0.
	C	Source Temperature C	00010		
		Langelier Index Source Temp.	71814		
		Langelier Index at 60 C	71813		
	Std. Units	Field PH	00400		
		Agressiveness Index	82383		
	mg/L	Silica	00955		
	mg/L	Phosphate	00650		
	mg/L	Iodide	71865		
		Sodium Absorption Ratio	00931		
		Asbestos	81855		
	mg/L	Boron	01020		

MW-32 Deep Med

Clinical Laboratory of San Bernardino, Inc.

P. O. Box 329
1595 North "D" Street
San Bernardino, California 92405
(714) 885-3216

PURVEYOR: KREIGER & STEWART (IWVWD) SAMPLE I.D.#: 91-9499

STREET ADDRESS: DATE OF REPORT: 11/6/91

CITY,STATE,ZIP:

DESCRIPTION OF SAMPLING POINT: W 32 P-3 (1200') ** FILTERED **

DATE/TIME COLLECTED: 10/21/91 15:00 NAME OF SAMPLER: UNKNOWN

GENERAL MINERAL	RESULTS	UNITS	MCL
TOTAL HARDNESS	26.0	mg/L	
CALCIUM HARDNESS	16.0	mg/L	
CALCIUM	6.4	mg/L	
MAGNESIUM	2.4	mg/L	
SODIUM	58.2	mg/L	
POTASSIUM	2.0	mg/L	
TOTAL ALKALINITY	90.0	mg/L	
HYDROXIDE	< 1.0	mg/L	
CARBONATE	< 1.0	mg/L	
BICARBONATE	109.8	mg/L	
SULFATE	22.1	mg/L	
CHLORIDE	24.9	mg/L	
NITRATE	14.6	mg/L	45
FLUORIDE	0.7	mg/L	
TOTAL ANIONS	3.1	mEq/L	
TOTAL CATIONS	3.2	mEq/L	
RPD ANIONS/CATIONS	1.0	PERCENT	
pH	8.3	STD UNITS	
E.C.	330.0	umho/cm	
TDS	176.3	mg/L	
MBAS	< 0.02	mg/L	

G.M. CONT	RESULTS	UNITS	MCL
MANGANESE	65	ug/L	50
COPPER	< 50	ug/l	1000
IRON	3350	ug/L	300
ZINC	< 50	ug/L	5000

INORGANICS	RESULTS	UNITS	MCL
BARIUM	< 100	ug/L	1000
CHROMIUM	< 10	ug/L	50
CADMIUM	< 1	ug/L	10
LEAD	< 5	ug/l	50
ALUMINUM	< 100	ug/L	1000
MERCURY	< 1	ug/l	2
ARSENIC	< 10	ug/L	50
SELENIUM	< 5	ug/L	100
SILVER	< 10	ug/L	50

ATE(S) RECEIVED: 10/23/91 STARTED: 11/1/91 COMPLETED: 11/5/91

ALL ANALYSES ARE PERFORMED IN ACCORDANCE WITH APHA'S STANDARD METHODS, (17TH EDITION) OR EPA'S METHODS FOR CHEMICAL ANALYSIS OF WATER AND WASTE

ANALYST:_____ DIRECTOR: Carol Jallen

CLINICAL\LABS SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

GENERAL MINERAL & PHYSICAL, INORGANIC, & RADIOLOGICAL CHEMICAL ANALYSIS

Date of Report: 10/25/91 Sample ID No. 91-9498
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director:
Name of Sampler:BILL B. Employed By:ROTTMAN DRILLING CO.
Date/Time Sample Collected: 91/10/21/2200 Date/Time Sample Received @ Lab: 91/10/23/1700 Date Analyses Completed: 91/10/25

System Name: INDIAN WELLS VALLEY CWD - RIDGECREST System Number: 15-017
Name or Number of Sample Source: W32 P4 (1900 FT.)

* User ID: CYA Station Number: 000/000-00X00 4 *
* Date/Time of Sample: |91|10|21|2200| (YY MM DD TTTT) Laboratory Code: 3761 *
* Date Analysis Completed: |91|10|25| (YY MM DD) *
* Submitted by:_____ Phone #:_____ *

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DLR
	mg/L	Total Hardness (as CaCO3)	00900	26.0	
	mg/L	Calcium (Ca)	00916	7.4	
	mg/L	Magnesium (Mg)	00927	1.8	
	mg/L	Sodium (Na)	00929	190.5	
	mg/L	Potassium (K)	00937	4.1	
Total Cations		Meq/L Value: 8.9			
	mg/L	Total Alkalinity (AS CaCO3)	00410	198.0	
	mg/L	Hydroxide (OH)	71830	< 1.0	
	mg/L	Carbonate (CO3)	00445	< 1.0	
	mg/L	Bicarbonate (HCO3)	00440	241.6	
*	mg/L*	Sulfate (SO4)	00945	138.2	
*	mg/L*	Chloride (Cl)	00940	78.8	
45	mg/L	Nitrate (as NO3)	71850	1.0	
****	mg/L	Fluoride (F) Temp. Depend.	00951	5.6	0.1
Total Anions		Meq/L Value: 9.4			
	Std. Units	PH (Laboratory)	00403	8.6	
**	umho/cm**	Specific Conductance (E.C.)	00095	960.0	
***	mg/L***	Total Filterable Residue at 180C (TDS)	70300	526.4	
	Units	Apparent Color (Unfiltered)	00081	< 70.0	
	TON	Odor Threshold at 60 C	00086	1.0	
	NTU	Lab Turbidity	82079	74.0	
0.5	mg/L	MBAS	38260	< 0.02	

* 250-500-600 ** 900-1600-2200 *** 500-1000-1500 **** 1.4-2.4

MW-32 Deep

PAGE 2 OF 2 INORGANIC CHEMICALS 91-9498

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	[illegible]
1000	ug/L	Aluminum (Al)	01105	635.00	100.0
50	ug/L	Arsenic (As)	01002	61.00	10.0
1000	ug/L	Barium (Ba)	01007	<100.00	100.0
10	ug/L	Cadmium (Cd)	01027	< 1.00	1.0
50	ug/L	Chromium (Total Cr)	01034	< 10.00	10.0
1000	ug/L	Copper (Cu)	01042	< 50.00	50.0
300	ug/L	Iron (Fe)	01045	1550.0	100.0
50	ug/L	Lead (Pb)	01051	< 5.00	5.0
50	ug/L	Manganese (Mn)	01055	100.00	30.0
2	ug/L	Mercury (Hg)	71900	< 1.00	1.0
10	ug/L	Selenium (Se)	01147	< 5.00	5.0
50	ug/L	Silver (Ag)	01077	< 10.00	10.0
5000	ug/L	Zinc (Zn)	01092	< 50.00	50.0
		RADIOACTIVITY ANALYSIS			
15	PCi/L	Total Alpha	01501		
	PCi/L	Total Alpha Counting Error	01502		
50	PCi/L	Total Beta	03501		4.0
	PCi/L	Total Beta Counting Error	03502		
20	PCi/L	Natural Uranium	28012		2.0
	PCi/L	Total Radium 226	09501		0.5
	PCi/L	Total Radium 226 Counting Error	09502		
	PCi/L	Total Radium 228	11501		5
	PCi/L	Total Radium 228 Counting Error	11502		
5	PCi/L	Ra 226 + Ra 228	11503		
	PCi/L	Ra 226 + Ra 228 Counting Error	11504		
	PCi/L	Radon 222	82303		100.0
	PCi/L	Radon 222 Counting Error	82302		
20000	PCi/L	Total Tritium	07000		1.0
	PCi/L	Total Tritium Counting Error	07001		
8	PCi/L	Total Strontium - 90	13501		2.0
	PCi/L	Total Strontium - 90 Counting Error	13502		
		ADDITIONAL ANALYSES			
	NTU	Field Turbidity	82078		0.1
	C	Source Temperature C	00010		
		Langelier Index Source Temp.	71814		
		Langelier Index at 60 C	71813		
	Std. Units	Field PH	00400		
		Agressiveness Index	82383		
	mg/L	Silica	00955		
	mg/L	Phosphate	00650		
	mg/L	Iodide	71865		
		Sodium Absorption Ratio	00931		
		Asbestos	81855		
	mg/L	Boron	01020		

MW-32 Deep

Clinical Laboratory of San Bernardino, Inc.

P. O. Box 329
1595 North "D" Street
San Bernardino, California 92405
(714) 885-3216

PURVEYOR: KRIEGER AND STEWART (IWVWD) SAMPLE I.D.#: SEE BELOW

STREET ADDRESS: DATE OF REPORT:10/31/91

CITY,STATE,ZIP:

DESCRIPTION OF SAMPLING POINT: SEE BELOW

DATE COLLECTED: 10/6/91 NAME OF SAMPLER: BILLY BONCHAIS

SAMPLE I.D.	SUPERNATE	MIXED	UNITS	MCL
91-9065	Fe = 460	Fe = 7740	mg/L	300
2 P-1	Mn = <30	Mn = 3100	mg/L	50
(381')	Al = 1000	Al = 3699	mg/L	1000
91-9066	Fe = 1179	Fe = 1755	mg/L	300
W32 P-2	Mn = 35	Mn = 35	mg/L	50
(901')	Al = <100		mg/L	1000
91-9067	Fe = 818	Fe = 2852	mg/L	300
W32 P-3	Mn = 69	Mn = 51	mg/L	50
(1261')	Al = <100		mg/L	1000
91-9068	Fe = 1137	Fe = 3790	mg/L	300
P-4	Mn = 127	Mn = 226	mg/L	50

..TE(S) RECEIVED: 10/6/91 STARTED: 10/18/91 COMPLETED: 10/30/91

ALL ANALYSES ARE PERFORMED IN ACCORDANCE WITH APHA'S STANDARD METHODS, (17TH EDITION) OR EPA'S METHODS FOR CHEMICAL ANALYSIS OF WATER AND WASTE

ANALYST:_____ DIRECTOR: Mehdi Amini

BC LABORATORIES

Naval Air Warfare Center
Weapons Division
Code 2606
China Lake, CA 93555-6001
Attn.: DR. MONASTERO 619-939-2700

Date Reported: 09/09/92
Date Received: 08/26/92
Laboratory No.: 7640-4

Sample Description: GEOTHERMAL PROGRAM - PROJECT #1 SNORT: SDW-1, P-5, 08-25-92 @ 14:00
COLLECTED BY HASTING

SNORT 850'-870'
WATER ANALYSIS
(GENERAL CHEMISTRY)

Constituents	Results	Units	D.L.R.	Method
Calcium	1.9	mg/L	0.1	SW-7140
Magnesium	1.0	mg/L	0.01	SW-7450
Sodium	3950.	mg/L	0.1	SW-7770
Potassium	25.	mg/L	0.1	SW-7610
Carbonate	1570.	mg/L	2.6	SM-403
Bicarbonate	1950.	mg/L	2.6	SM-403
Chloride	3040.	mg/L	1.8	EPA-300.0
Sulfate	46.	mg/L	5.	EPA-300.0
Nitrate as NO3	None Detected	mg/L	0.4	EPA-353.2
'luoride	27.	mg/L	0.05	EPA-340.2
ɗromide	6.6	mg/L	0.05	EPA-300.0
pH	9.7	pH Units	0.1	SW-9040
Electrical Conductivity @ 25 C	15100.	umhos/cm	1.	SW-9050
Total Dissolved Solids @ 180 C	9890.	mg/L	10.	EPA-160.1
Ammonia as NH3	28.	mg/L	0.02	EPA-350.1
Nitrite Nitrogen	None Detected	mg/L	0.10	EPA-353.2
Ortho-phosphate	8.4	mg/L	0.10	EPA-365.1

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:
EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
SM = "Standard Methods for Examination of Water and Wastewater", 16th Edition 1986.
SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods", EPA-SW-846, September, 1986.

M. Alencia
Department Supervisor

SNORT 850-870

BC LABORATORIES

Naval Air Warfare Center
Weapons Division
Code 2606
China Lake, CA 93555-6001
Attn.: DR. MONASTERO 619-939-2700

Date Reported: 09/09/92
Date Received: 08/26/92
Laboratory No.: 7640-4

Sample Description: GEOTHERMAL PROGRAM - PROJECT #1 SNORT: SDW-1, P-5, 08-25-92 @ 14:00
COLLECTED BY HASTING

SNORT 850'-870'
WATER ANALYSIS
(METALS)

Constituents	Results	Units	D.L.R.	Method
Aluminum	578.	µg/L	50.	SW-6010
Antimony	None Detected	µg/L	100.	SW-6010
Arsenic	5.2	µg/L	2.	SW-7060
Boron	93.5	mg/L	0.10	SW-6010
Copper	None Detected	µg/L	10.	SW-6010
Lithium	50.	µg/L	10.	SW-7430
Manganese	36.	µg/L	10.	SW-6010
Mercury	None Detected	µg/L	0.2	EPA-245.1
* Selenium	None Detected	µg/L	10.	SW-7740
Si as SiO2	63.	mg/L	0.2	SW-6010
Strontium	72.	µg/L	10.	SW-6010
Thallium	None Detected	µg/L	5.	SW-7841
Zinc	54.	µg/L	10.	SW-6010
Total Iron	1940.	µg/L	50.	SW-6010

* Detection limit increased due to matrix interferences.

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:
EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods", EPA-SW-846, September, 1986.

Department Supervisor

SNORT 850-870

BC LABORATORIES

Naval Air Warfare Center
Weapons Division
Code 2606
China Lake, CA 93555-6001
Attn.: DR. MONASTERO 619-939-2700

Date Reported: 09/09/92
Date Received: 08/26/92
Laboratory No.: 7640-3

Sample Description: GEOTHERMAL PROGRAM - PROJECT #1 SNORT: SDW-1, P-4, 08-25-92 @ 8:00
COLLECTED BY HASTING

SNORT 3,300'-3,320'
WATER ANALYSIS
(GENERAL CHEMISTRY)

Constituents	Results	Units	D.L.R.	Method
Calcium	35.	mg/L	0.1	SW-7140
Magnesium	6.9	mg/L	0.01	SW-7450
Sodium	3900.	mg/L	0.1	SW-7770
Potassium	14.5	mg/L	0.1	SW-7610
Carbonate	109.	mg/L	2.6	SM-403
Bicarbonate	2530.	mg/L	2.6	SM-403
Chloride	3420.	mg/L	1.8	EPA-300.0
Sulfate	1170.	mg/L	5.	EPA-300.0
Nitrate as NO3	None Detected	mg/L	0.4	EPA-353.2
Fluoride	17.4	mg/L	0.05	EPA-340.2
Bromide	3.8	mg/L	0.05	EPA-300.0
pH	8.2	pH Units	0.1	SW-9040
Electrical Conductivity @ 25 C	15900.	umhos/cm	1.	SW-9050
Total Dissolved Solids @ 180 C	9350.	mg/L	10.	EPA-160.1
Ammonia as NH3	11.6	mg/L	0.02	EPA-350.1
Nitrite Nitrogen	None Detected	mg/L	0.10	EPA-353.2
Ortho-phosphate	0.84	mg/L	0.10	EPA-365.1

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:
EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
SM = "Standard Methods for Examination of Water and Wastewater", 16th Edition 1986.
SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods", EPA-SW-846, September, 1986.

M. A. Tencio
Department Supervisor

SNORT 3,300-3,320

BC LABORATORIES

Naval Air Warfare Center
Weapons Division
Code 2606
China Lake, CA 93555-6001
Attn.: DR. MONASTERO 619-939-2700

Date Reported: 09/09/92
Date Received: 08/26/92
Laboratory No.: 7640-3

Sample Description: GEOTHERMAL PROGRAM - PROJECT #1 SNORT: SDW-1, P-4, 08-25-92 @ 8:00
COLLECTED BY HASTING

SNORT 3,300'-3,320'
WATER ANALYSIS
(METALS)

Constituents	Results	Units	D.L.R.	Method
Aluminum	1190.	µg/L	50.	SW-6010
Antimony	None Detected	µg/L	100.	SW-6010
Arsenic	62.	µg/L	2.	SW-7060
Boron	52.5	mg/L	0.10	SW-6010
Copper	None Detected	µg/L	10.	SW-6010
Lithium	1140.	µg/L	10.	SW-7430
Manganese	57.	µg/L	10.	SW-6010
Mercury	None Detected	µg/L	0.2	EPA-245.1
*Selenium	None Detected	µg/L	10.	SW-7740
i as SiO2	50.	mg/L	0.2	SW-6010
Strontium	1590.	µg/L	10.	SW-6010
Thallium	None Detected	µg/L	5.	SW-7841
Zinc	35.	µg/L	10.	SW-6010
Total Iron	3480.	µg/L	50.	SW-6010

* Detection limit increased due to matrix interferences.

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:
EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods", EPA-SW-846, September, 1986.

Department Supervisor

SNORT 3,300-3,320

BC LABORATORIES

Naval Air Warfare Center
Weapons Division
Code 2606
China Lake, CA 93555-6001
Attn.: DR. MONASTERO 619-939-2700

Date Reported: 09/09/92
Date Received: 08/26/92
Laboratory No.: 7640-2

Sample Description: GEOTHERMAL PROGRAM - PROJECT #1 SNORT: SDW-1, P-3, 08-24-92 @ 15:00
COLLECTED BY HASTING

SNORT 5,550'-5,570'
WATER ANALYSIS
(GENERAL CHEMISTRY)

Constituents	Results	Units	D.L.R.	Method
Calcium	4.6	mg/L	0.1	SW-7140
Magnesium	3.2	mg/L	0.01	SW-7450
Sodium	4920.	mg/L	0.1	SW-7770
Potassium	22.	mg/L	0.1	SW-7610
Carbonate	77.0	mg/L	2.6	SM-403
Bicarbonate	1270.	mg/L	2.6	SM-403
Chloride	5100.	mg/L	1.8	EPA-300.0
Sulfate	2080.	mg/L	5.	EPA-300.0
Nitrate as NO3	None Detected	mg/L	0.4	EPA-353.2
Fluoride	12.6	mg/L	0.05	EPA-340.2
Bromide	5.6	mg/L	0.05	EPA-300.0
pH	8.2	pH Units	0.1	SW-9040
Electrical Conductivity @ 25 C	24000.	umhos/cm	1.	SW-9050
Total Dissolved Solids @ 180 C	12500.	mg/L	10.	EPA-160.1
Ammonia as NH3	11.4	mg/L	0.02	EPA-350.1
Nitrite Nitrogen	None Detected	mg/L	0.10	EPA-353.2
Ortho-phosphate	0.44	mg/L	0.10	EPA-365.1

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:
EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
SM = "Standard Methods for Examination of Water and Wastewater", 16th Edition 1986.
SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods", EPA-SW-846, September, 1986.

Department Supervisor

SNORT 5,550-5,570

BC LABORATORIES

Naval Air Warfare Center
Weapons Division
Code 2606
China Lake, CA 93555-6001
Attn.: DR. MONASTERO 619-939-2700

Date Reported: 09/09/92
Date Received: 08/26/92
Laboratory No.: 7640-2

Sample Description: GEOTHERMAL PROGRAM - PROJECT #1 SNORT: SDW-1, P-3, 08-24-92 @ 15:00
COLLECTED BY HASTING

SNORT 5,550'-5,570'
WATER ANALYSIS
(METALS)

Constituents	Results	Units	D.L.R.	Method
Aluminum	741.	µg/L	50.	SW-6010
Antimony	None Detected	µg/L	100.	SW-6010
Arsenic	57.	µg/L	2.	SW-7060
Boron	60.6	mg/L	0.10	SW-6010
Copper	None Detected	µg/L	10.	SW-6010
Lithium	1550.	µg/L	10.	SW-7430
Manganese	36.	µg/L	10.	SW-6010
Mercury	None Detected	µg/L	0.2	EPA-245.1
* Selenium	None Detected	µg/L	10.	SW-7740
i as SiO2	45.	mg/L	0.2	SW-6010
Strontium	3100.	µg/L	10.	SW-6010
Thallium	None Detected	µg/L	5.	SW-7841
Zinc	19.	µg/L	10.	SW-6010
Total Iron	806.	µg/L	50.	SW-6010

* Detection limit increased due to matrix interferences.

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:
EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods", EPA-SW-846, September, 1986.

Department Supervisor

SNORT 5,550-5,570

BC LABORATORIES

Naval Air Warfare Center
Weapons Division
Code 2606
China Lake, CA 93555-6001
Attn.: DR. MONASTERO 619-939-2700

Date Reported: 09/09/92
Date Received: 08/26/92
Laboratory No.: 7640-1

Sample Description: GEOTHERMAL PROGRAM - PROJECT #1 SNORT: SDW-1, P-2, 08-24-92 @ 8:30
COLLECTED BY HASTING (P-2, 7,120-7140')

SNORT 7,120'-7,140'
WATER ANALYSIS
(GENERAL CHEMISTRY)

Constituents	Results	Units	D.L.R.	Method
Calcium	4.6	mg/L	0.1	SW-7140
Magnesium	3.2	mg/L	0.01	SW-7450
Sodium	3480.	mg/L	0.1	SW-7770
Potassium	9.3	mg/L	0.1	SW-7610
Carbonate	456.	mg/L	2.6	SM-403
Bicarbonate	2620.	mg/L	2.6	SM-403
Chloride	2460.	mg/L	1.8	EPA-300.0
Sulfate	910.	mg/L	5.	EPA-300.0
Nitrate as NO3	None Detected	mg/L	0.4	EPA-353.2
Fluoride	24.	mg/L	0.05	EPA-340.2
Bromide	2.9	mg/L	0.05	EPA-300.0
pH	8.9	pH Units	0.1	SW-9040
Electrical Conductivity @ 25 C	13500.	umhos/cm	1.	SW-9050
Total Dissolved Solids @ 180 C	8900.	mg/L	10.	EPA-160.1
Ammonia as NH3	14.6	mg/L	0.02	EPA-350.1
Nitrite Nitrogen	None Detected	mg/L	0.10	EPA-353.2
Ortho-phosphate	0.24	mg/L	0.10	EPA-365.1

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:
EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
SM = "Standard Methods for Examination of Water and Wastewater", 16th Edition 1986.
SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods", EPA-SW-846, September, 1986.

Department Supervisor

SNORT 7,120-7,140

BC LABORATORIES

Naval Air Warfare Center
Weapons Division
Code 2606
China Lake, CA 93555-6001
Attn.: DR. MONASTERO 619-939-2700

Date Reported: 09/09/92
Date Received: 08/26/92
Laboratory No.: 7640-1

Sample Description: GEOTHERMAL PROGRAM - PROJECT #1 SNORT: SDW-1, P-2, 08-24-92 @ 8:30
COLLECTED BY HASTING

SNORT 7,120'-7,140'
WATER ANALYSIS
(METALS)

Constituents	Results	Units	D.L.R.	Method
Aluminum	1730.	µg/L	50.	SW-6010
Antimony	None Detected	µg/L	100.	SW-6010
Arsenic	80.	µg/L	2.	SW-7060
Boron	52.9	mg/L	0.10	SW-6010
Copper	None Detected	µg/L	10.	SW-6010
Lithium	560.	µg/L	10.	SW-7430
Manganese	98.	µg/L	10.	SW-6010
Mercury	None Detected	µg/L	0.2	EPA-245.1
*Selenium	None Detected	µg/L	10.	SW-7740
as SiO2	43.	mg/L	0.2	SW-6010
Strontium	350.	µg/L	10.	SW-6010
Thallium	None Detected	µg/L	5.	SW-7841
Zinc	46.	µg/L	10.	SW-6010
Total Iron	8960.	µg/L	50.	SW-6010

* Detection limit increased due to matrix interferences.
D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:
EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods", EPA-SW-846, September, 1986.

Richard T. Lam
Department Supervisor

SNORT 7,120-7,140

PAGE 2 OF 2 INORGANIC CHEMICALS 92-0736

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DL
1000	ug/L	Aluminum (Al)	01105	1605.0	100.0
50	ug/L	Arsenic (As)	01002	195.00	10.0
1000	ug/L	Barium (Ba)	01007	<100.00	100.0
10	ug/L	Cadmium (Cd)	01027	< 1.00	1.0
50	ug/L	Chromium (Total Cr)	01034	< 10.00	10.0
1000	ug/L	Copper (Cu)	01042	< 50.00	50.0
300	ug/L	Iron (Fe)	01045	12300.	100.0
50	ug/L	Lead (Pb)	01051	7.00	5.0
50	ug/L	Manganese (Mn)	01055	510.00	30.0
2	ug/L	Mercury (Hg)	71900	< 1.00	1.0
10	ug/L	Selenium (Se)	01147	< 5.00	5.0
50	ug/L	Silver (Ag)	01077	< 10.00	10.0
5000	ug/L	Zinc (Zn)	01092	90.00	50.0
		RADIOACTIVITY ANALYSIS			
15	PCi/L	Total Alpha	01501		
	PCi/L	Total Alpha Counting Error	01502		
50	PCi/L	Total Beta	03501		4.0
	PCi/L	Total Beta Counting Error	03502		
20	PCi/L	Natural Uranium	28012		2.0
	PCi/L	Total Radium 226	09501		0.5
	PCi/L	Total Radium 226 Counting Error	09502		
	PCi/L	Total Radium 228	11501		5
	PCi/L	Total Radium 228 Counting Error	11502		
5	PCi/L	Ra 226 + Ra 228	11503		
	PCi/L	Ra 226 + Ra 228 Counting Error	11504		
	PCi/L	Radon 222	82303		100.0
	PCi/L	Radon 222 Counting Error	82302		
20000	PCi/L	Total Tritium	07000		1.0
	PCi/L	Total Tritium Counting Error	07001		
8	PCi/L	Total Strontium - 90	13501		2.0
	PCi/L	Total Strontium - 90 Counting Error	13502		
		ADDITIONAL ANALYSES			
	NTU	Field Turbidity	82078		0.1
	C	Source Temperature C	00010		
		Langelier Index Source Temp.	71814		
		Langelier Index at 60 C	71813		
	Std. Units	Field PH	00400		
		Agressiveness Index	82383		
	mg/L	Silica	00955		
	mg/L	Phosphate	00650		
	mg/L	Iodide	71865		
		Sodium Absorption Ratio	00931		
		Asbestos	81855		
	mg/L	Boron	01020		

BR-6 Shallow

CLINICAL LABORATORY OF SAN BERNARDINO
1595 NORTH "D"STREET
SAN BERNARDINO, CA. 92405

GENERAL MINERAL & PHYSICAL, INORGANIC, & RADIOLOGICAL CHEMICAL ANALYSIS

Date of Report: 02/06/92 Sample ID No.92-0734
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director:
Name of Sampler:UNKNOWN Employed By:UNKNOWN
Date/Time Sample Collected: 92/01/10/0000 Date/Time Sample Received @ Lab: 92/01/29/1700 Date Analyses Completed: 92/02/05

System Name: INDIAN WELLS VALLEY CWD - RIDGECREST System Number: 15-017
Name or Number of Sample Source: BOR WELL 6 1190- 1210

User ID: CYA Station Number:
Date/Time of Sample: |92|01|10|0000| YY MM DD TTTT Laboratory Code: 3761
Date Analysis Completed: |92|02|05| YY MM DD
Submitted by: Phone #:

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DLR
	mg/L	Total Hardness (as CaCO3)	00900	80.0	
	mg/L	Calcium (Ca)	00916	4.8	
	mg/L	Magnesium (Mg)	00927	16.5	
	mg/L	Sodium (Na)	00929	188.6	
	mg/L	Potassium (K)	00937	8.6	
Total Cations		Meq/L Value: 10.0			
	mg/L	Total Alkalinity (AS CaCO3)	00410	380.0	
	mg/L	Hydroxide (OH)	71830	< 1.0	
	mg/L	Carbonate (CO3)	00445	< 1.0	
	mg/L	Bicarbonate (HCO3)	00440	463.6	
*	mg/L*	Sulfate (SO4)	00945	34.6	
*	mg/L*	Chloride (Cl)	00940	33.3	
45	mg/L	Nitrate (as NO3)	71850	1.7	
****	mg/L	Fluoride (F) Temp. Depend.	00951	3.3	0.1
Total Anions		Meq/L Value: 9.5			
	Std. Units	PH (Laboratory)	00403	9.1	
**	umho/cm**	Specific Conductance (E.C.)	00095	950.0	
***	mg/L***	Total Filterable Residue at 180C (TDS)	70300	481.4	
	Units	Apparent Color (Unfiltered)	00081	5.0	
	TON	Odor Threshold at 60 C	00086	2.0	
	NTU	Lab Turbidity	82079	85.0	
0.5	mg/L	MBAS	38260	< 0.02	

* 250-500-600 ** 900-1600-2200 *** 500-1000-1500 **** 1.4-2.4

BR-6 Medium

PAGE 2 OF 2 INORGANIC CHEMICALS 92-0734

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DL
1000	ug/L	Aluminum (Al)	01105	865.00	100.0
50	ug/L	Arsenic (As)	01002	135.00	10.0
1000	ug/L	Barium (Ba)	01007	<100.00	100.0
10	ug/L	Cadmium (Cd)	01027	< 1.00	1.0
50	ug/L	Chromium (Total Cr)	01034	< 10.00	10.0
1000	ug/L	Copper (Cu)	01042	< 50.00	50.0
300	ug/L	Iron (Fe)	01045	4535.0	100.0
50	ug/L	Lead (Pb)	01051	6.00	5.0
50	ug/L	Manganese (Mn)	01055	140.00	30.0
2	ug/L	Mercury (Hg)	71900	< 1.00	1.0
10	ug/L	Selenium (Se)	01147	< 5.00	5.0
50	ug/L	Silver (Ag)	01077	< 10.00	10.0
5000	ug/L	Zinc (Zn)	01092	< 50.00	50.0
		RADIOACTIVITY ANALYSIS			
15	PCi/L	Total Alpha	01501		
	PCi/L	Total Alpha Counting Error	01502		
50	PCi/L	Total Beta	03501		4.0
	PCi/L	Total Beta Counting Error	03502		
20	PCi/L	Natural Uranium	28012		2.0
	PCi/L	Total Radium 226	09501		0.5
	PCi/L	Total Radium 226 Counting Error	09502		
	PCi/L	Total Radium 228	11501		5
	PCi/L	Total Radium 228 Counting Error	11502		
5	PCi/L	Ra 226 + Ra 228	11503		
	PCi/L	Ra 226 + Ra 228 Counting Error	11504		
	PCi/L	Radon 222	82303		100.0
	PCi/L	Radon 222 Counting Error	82302		
20000	PCi/L	Total Tritium	07000		1.0
	PCi/L	Total Tritium Counting Error	07001		
8	PCi/L	Total Strontium - 90	13501		2.0
	PCi/L	Total Strontium - 90 Counting Error	13502		
		ADDITIONAL ANALYSES			
	NTU	Field Turbidity	82078		0.1
	C	Source Temperature C	00010		
		Langelier Index Source Temp.	71814		
		Langelier Index at 60 C	71813		
	Std. Units	Field PH	00400		
		Agressiveness Index	82383		
	mg/L	Silica	00955		
	mg/L	Phosphate	00650		
	mg/L	Iodide	71865		
		Sodium Absorption Ratio	00931		
		Asbestos	81855		
	mg/L	Boron	01020		

BR-6 Medium

CLINICAL LABORATORY OF SAN BERNARDINO
1595 NORTH "D"STREET
SAN BERNARDINO, CA. 92405

RADIOACTIVITY ANALYSIS

Date of Report: 02/06/92 Sample ID No.92-0734
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director:
Name of Sampler:UNKNOWN Employed By:UNKNOWN
Date/Time Sample Collected: 92/01/29/0000 | Date/Time Sample Received @ Lab: 92/01/29/1700 | Date Analyses Completed: 92/02/05

System Name: INDIAN WELLS VALLEY CWD - RIDGECREST
System Number: 15-017
Name or Number of Sample Source: BOR WELL 6 1190- 1210

User ID: CYA Station Number:
Date/Time of Sample: |92|01|29|0000| (YY MM DD TTTT)
Laboratory Code: 3761
Date Analysis Completed: |92|02|05| (YY MM DD)
Submitted by:_____ Phone #:_____

MCL	REPORT UNITS	CONSTITUENT	STORET CODE	ANALYSES RESULTS	DLR
15	pCi/l	Total Alpha	01501	4.3	
	pCi/l	Total Alpha Counting Error	01502	1.7	
50	pCi/l	Total Beta	03501		4.0
	pCi/l	Total Beta Counting Error	03502		
20	pCi/l	Natural Uranium	28012		2.0
	pCi/l	Total Radium 226	09501		.5
	pCi/l	Total Radium 226 Counting Error	09502		
	pCi/l	Total Radium 228	11501		.5
	pCi/l	Total Radium 228 Counting Error	11502		
5	pCi/l	Ra 226 + Ra 228	11503		
	pCi/l	Ra 226 + Ra 228 Counting Error	11504		
20000	pCi/l	Total Tritium	07000		1.0
	pCi/l	Total Tritium Counting Error	07001		
8	pCi/l	Total Strontium - 90	13501		2.0
	pCi/l	Total Strontium - 90 Counting Error	13502		
	pCi/l	Total Radon 222	82303		100.0
	pCi/l	Total Radon 222 Counting Error	82302		

BR-6 Medium

CLINICAL LABORATORY OF SAN BERNARDINO
1595 NORTH "D"STREET
SAN BERNARDINO, CA. 92405

GENERAL MINERAL & PHYSICAL, INORGANIC, & RADIOLOGICAL CHEMICAL ANALYSIS

Date of Report: 02/06/92 Sample ID No.92-0735
Laboratory Name: CLINICAL LABORATORIES OF SAN BERNARDINO Signature Lab Director:
Name of Sampler:UNKNOWNEmployed By:UNKNOWN
Date/Time Sample Collected: 92/01/10/0000 Date/Time Sample Received @ Lab: 92/01/29/1700 Date Analyses Completed: 92/02/05

System Name: INDIAN WELLS VALLEY CWD - RIDGECREST System Number: 15-017
Name or Number of Sample Source: BOR WELL 6 1640 - 1660

User ID: CYA Station Number:
Date/Time of Sample: |92|01|10|0000| (YY MM DD TTTT) Laboratory Code: 3761
Date Analysis Completed: |92|02|05| (YY MM DD)
Submitted by: Phone #:

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DLR
	mg/L	Total Hardness (as CaCO3)	00900	76.0	
	mg/L	Calcium (Ca)	00916	5.8	
	mg/L	Magnesium (Mg)	00927	15.0	
	mg/L	Sodium (Na)	00929	223.4	
	mg/L	Potassium (K)	00937	7.4	
Total Cations		Meq/L Value: 11.4			
	mg/L	Total Alkalinity (AS CaCO3)	00410	440.0	
	mg/L	Hydroxide (OH)	71830	< 1.0	
	mg/L	Carbonate (CO3)	00445	< 1.0	
	mg/L	Bicarbonate (HCO3)	00440	536.8	
*	mg/L*	Sulfate (SO4)	00945	37.5	
*	mg/L*	Chloride (Cl)	00940	29.4	
45	mg/L	Nitrate (as NO3)	71850	< 1.0	
****	mg/L	Fluoride (F) Temp. Depend.	00951	1.7	0.1
Total Anions		Meq/L Value: 10.5			
	Std. Units	PH (Laboratory)	00403	8.9	
**	umho/cm**	Specific Conductance (E.C.)	00095	980.0	
***	mg/L***	Total Filterable Residue at 180C (TDS)	70300	540.1	
	Units	Apparent Color (Unfiltered)	00081	40.0	
	TON	Odor Threshold at 60 C	00086	2.0	
	NTU	Lab Turbidity	82079	140.0	
0.5	mg/L	MBAS	38260	< 0.02	

* 250-500-600 ** 900-1600-2200 *** 500-1000-1500 **** 1.4-2.4

BR-6 Deep

AGE 2 OF 2 INORGANIC CHEMICALS 92-0735

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DLR
1000	ug/L	Aluminum (Al)	01105	1325.0	100.0
50	ug/L	Arsenic (As)	01002	75.00	10.0
1000	ug/L	Barium (Ba)	01007	<100.00	100.0
10	ug/L	Cadmium (Cd)	01027	< 1.00	1.0
50	ug/L	Chromium (Total Cr)	01034	< 10.00	10.0
1000	ug/L	Copper (Cu)	01042	< 50.00	50.0
300	ug/L	Iron (Fe)	01045	3925.0	100.0
50	ug/L	Lead (Pb)	01051	< 5.00	5.0
50	ug/L	Manganese (Mn)	01055	160.00	30.0
2	ug/L	Mercury (Hg)	71900	< 1.00	1.0
10	ug/L	Selenium (Se)	01147	< 5.00	5.0
50	ug/L	Silver (Ag)	01077	< 10.00	10.0
5000	ug/L	Zinc (Zn)	01092	< 50.00	50.0
		RADIOACTIVITY ANALYSIS			
15	PCi/L	Total Alpha	01501		
	PCi/L	Total Alpha Counting Error	01502		
50	PCi/L	Total Beta	03501		4.0
	PCi/L	Total Beta Counting Error	03502		
20	PCi/L	Natural Uranium	28012		2.0
	PCi/L	Total Radium 226	09501		0.5
	PCi/L	Total Radium 226 Counting Error	09502		
	PCi/L	Total Radium 228	11501		0
	PCi/L	Total Radium 228 Counting Error	11502		
5	PCi/L	Ra 226 + Ra 228	11503		
	PCi/L	Ra 226 + Ra 228 Counting Error	11504		
	PCi/L	Radon 222	82303		100.0
	PCi/L	Radon 222 Counting Error	82302		
20000	PCi/L	Total Tritium	07000		1.0
	PCi/L	Total Tritium Counting Error	07001		
8	PCi/L	Total Strontium - 90	13501		2.0
	PCi/L	Total Strontium - 90 Counting Error	13502		
		ADDITIONAL ANALYSES			
	NTU	Field Turbidity	82078		0.1
	C	Source Temperature C	00010		
		Langelier Index Source Temp.	71814		
		Langelier Index at 60 C	71813		
	Std. Units	Field PH	00400		
		Agressiveness Index	82383		
	mg/L	Silica	00955		
	mg/L	Phosphate	00650		
	mg/L	Iodide	71865		
		Sodium Absorption Ratio	00931		
		Asbestos	81855		
	mg/L	Boron	01020		

BR-6 Deep

BC LABORATORIES

Naval Air Warfare Center
Weapons Division
Code 2862
China Lake, CA 93555-6001
Attn.: Disbursing Officer 619-939-2116

Date Reported: 09/16/92
Date Received: 09/02/92
Laboratory No.: 7880-1

Sample Description: BOR-10 640. SAMPLE WAS TAKEN ON 09-01-92 @ 3:00AM BY HASTING.

WATER ANALYSIS
(GENERAL CHEMISTRY)

Constituents	Results	Units	D.L.R.	Method
Calcium	21.	mg/L	0.1	SW-7140
Magnesium	19.0	mg/L	0.01	SW-7450
Sodium	295.	mg/L	0.1	SW-7770
Potassium	24.	mg/L	0.1	SW-7610
Total Cations	16.1	meq/L	0.01	Calculated
Hydroxide	< 0.8	mg/L	0.8	SM-403
Carbonate	40.2	mg/L	2.6	SM-403
Bicarbonate	300.	mg/L	2.6	SM-403
Chloride	176.	mg/L	1.8	EPA-300.0
Sulfate	225.	mg/L	5.	EPA-300.0
Nitrate/Nitrite as NO3	2.7	mg/L	0.4	EPA-353.2
Fluoride	1.3	mg/L	0.05	EPA-340.2
Bromide	0.45	mg/L	0.05	EPA-300.0
Total Anions	16.0	meq/L	0.01	Calculated
pH	8.7	pH Units	0.1	SW-9040
Electrical Conductivity @ 25 C	1570.	umhos/cm	1.	SW-9050
Total Dissolved Solids @ 180 C	1000.	mg/L	10.	EPA-160.1
Color	10.	Color Units	1.0	EPA-110.2
Odor	2.	Odor Units	NA	EPA-140.1
Turbidity	31.	NT Units	0.05	EPA-180.1
MBAS	0.40	mg/L	0.02	EPA-425.1
Hardness as CaCO3	131.	mg/L	0.3	Calculated
Alkalinity as CaCO3	313.	mg/L	3.0	Calc
Ammonia as NH3	< 0.02	mg/L	0.02	EPA-350.1
Nitrite Nitrogen	< 0.1	mg/L	0.1	EPA-353.2
Ortho-phosphate	0.36	mg/L	0.10	EPA-365.1

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:
EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
SM = "Standard Methods for Examination of Water and Wastewater", 16th Edition 1986.
SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods", EPA-SW-846, September, 1986.

M. Atencio
Department Supervisor

cc: GEOTHERMAL PROGRAM

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

TITLE 22 CHEMICAL ANALYSIS

Date of Report: 03/18/91 Sample ID No.911862
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: C. Jolley
Name of Sampler:GAIL MOULTON Employed By:NAC 615'-635'
Date/Time Sample Collected: 91/03/02/0900 Date/Time Sample Received @ Lab: 91/03/02/0900 Date Analyses Completed: 91/03/18

System Name: NORTH AMERICAN CHEMICAL - AKA KERR MCGEE System Number: 36-042
Name or Number of Sample Source: BOR #1

Water Type: (G/S) |S| Station Number: 036/042-BOR#1
Date/Time of Sample: |91|03|02|0900| User ID: TAN
YY MM DD HHMM

Analyzing Agency Code: 3761 Date Analysis Completed: |91|03|18|
YY MM DD

Submitted by:_____ Phone #:_____

Place an 'X' in box to delete all data for this station/date/time. |_|

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS	MCL	DLR
mg/L	Total Hardness (as CaCO3)	00900	22.4		
mg/L	Calcium (Ca)	00916	6.4		
mg/L	Magnesium (Mg)	00927	1.6		30.0
mg/L	Sodium (NA)	00929	79.2		
mg/L	Potassium (K)	00937	3.5		
Total Cations	Meq/L Value: 4.0				
mg/L	Total Alkalinity (AS CaCO3)	00410	124.8		
mg/L	Hydroxide (OH)	71830	< 1.0		
mg/L	Carbonate (CO3)	00445	< 1.0		
mg/L	Bicarbonate (HCO3)	00440	152.3		
mg/L*	Sulfate (SO4)	00945	27.9		
mg/L*	Chloride (Cl)	00940	17.1		
mg/L	Nitrate (as NO3)	71850	9.8	45	
mg/L	Fluoride (F) Temp. Depend.	00951	1.4	****	0.1
Total Anions	Meq/L Value: 3.8				
Std. Units	PH (Laboratory)	00403	8.7		
umho/cm**	Specific Conductance (E.C.)	00095	380.0	—	
mg/L***	Total Filterable Residue at 180C (TDS)	70300	212.8		
Units	Apparent Color (Unfiltered)	00081	> 70		
TON	Odor Threshold at 60 C	00086	2.0		1.0
NTU	Lab Turbidity	82079	170.0		
mg/L	MBAS	38260	< 0.02	0.5	0.02

* 250-500-600 ** 900-1600-2200 *** 500-100-1500 **** 1.4-2.4

BR-1 Shallow

PAGE 2 OF 2 911862

* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS		MCL	DLR
ug/L	Arsenic (As)	01002	<	10	50	10
ug/L	Barium (Ba)	01007	<	100	1000	100
ug/L	Cadmium (Cd)	01027	<	1	10	1
ug/L	Chromium (Total Cr)	01034	<	10	50	10
ug/L	Copper (Cu)	01042	<	50	1000	50
ug/L	Iron (Fe)	01045	<	100	300	100
ug/L	Lead (Pb)	01051	<	5	50	5
ug/L	Manganese (Mn)	01055	<	30	50	30
ug/L	Mercury (Hg)	71900	<	1	2	1
ug/L	Selenium (Se)	01147	<	5	10	5
ug/L	Silver (Ag)	01077	<	10	50	10
ug/L	Zinc (Zn)	01092	<	50	5000	50
ug/L	Aluminum	01105	<	100	1000	100
	ORGANIC CHEMICALS					
ug/L	Endrin (Hexadrin)	39390			0.2	0.02
ug/L	Gamma-BHC (Lindane)	39340			4	0.4
ug/L	Methoxychlor	39480			100	10.0
ug/L	Toxaphene	39400			5	0.5
ug/L	2,4-D	39730			100	1
ug/L	2,4,5-TP (Silvex) (WEED-B-GON)	39045			10	
	ADDITIONAL ANALYSES					
NTU	Field Turbidity	82078				0.1
C	Source Temperature C	00010				
	Langelier Index Source Temp.	71814				
	Langelier Index at 60 C	71813				
Std. Units	Field PH	00400				
	Agressiveness Index	82383				
mg/L	Silica	00955				
mg/L	Phosphate	00650				
mg/L	Iodide	71865				
	Sodium Absorption Ratio	00931				
	Asbestos	81855				
mg/L	Ammonia (NH3-N)	00612				
mg/L	Nitrite Nitrogen (NO2-N)	00615				
mg/L	Nitrate Nitrogen (NO3-N)	00618				1.0
mg/L	Nitrite (N)	00620				
mg/L	Beryllium	01012				
mg/L	Boron	01020				
mg/L	Thallium	01059				
mg/L	Nickel	01067				
mg/L	Antimony	01097				0.05
mg/L	Lithium	01132				
mg/L	Cyanide	01291				

BR-1 Shallow

Clinical Laboratory of San Bernardino, Inc.

1595 N. "D" St., San Bernardino, CA 92405
Phone (714) 885-3216
P. O. Box 329
San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report:	Lab Sample ID No. 91-1862
Laboratory Name: CLINICAL LAB OF SAN BERNARDINO	Signature of Lab Director: C. Jolley
Name of Sampler: Gail Moulton	Sampler Employed By: North American Chemical Co.
Date/Time Sample Collected: 91/03/02 09:00	Date/Time Sample Received @ Lab: 91/03/14
	Were Holding Times Observed: Yes
System Name: North American Chemical Co.	System Number:
Description of Sampling Point:	
Name/No. of Sample Source: I.W.V. Test Well #2 Bor #1 615 - 635	Station Number:
Date & f Time Sample: 9 1 0 3 0 2 0 9 0 0 (Y Y M M D D T T T T)	Water Type: (G/S)
	User ID:
	Submitted to SWQIS By:

MCL	REPORTING UNITS	CONSTITUENT	TT	STORET CODE	ANALYSES RESULTS
		Analyzing Agency		28	3,7,6,1
		Date Analyses Completed		73672	9,1,0,3,1,8 (Y Y M M D D)
5	pC/l	Total Alpha		1501	,3.6
	PC/l	Total Alpha Counting Error		1502	,1.6
50	pC/l	Total Beta		3501	
	pC/l	Total Beta Counting Error		3502	
	pC/l	Natural Uranium		28012	
3	pC/l	Total Radium 226		9501	
	pC/l	Total Radium 226 Counting Error		9502	
	pC/l	Total Radium 228		11501	
	pC/l	Total Radium 228 Counting Error		11502	
5	pC/l	Ra 226 + Ra 228		11503	
	pC/l	Ra 226 + Ra 228 Counting Error		11504	
20,000	pC/l	Total Tritium		7000	
	pC/l	Total Tritium Counting Error		7001	
8	pC/l	Total Strontium-90		13501	
	pC/l	Total Strontium-90 Counting Error		13502	

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

TITLE 22 CHEMICAL ANALYSIS

Date of Report: 03/18/91 Sample ID No,911863
Laboratory Signature Lab C, Jolley
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director:
Name of Sampler:GAIL MOULTON Employed By:NAC 1040'-1060'
Date/Time Sample Collected: 91/03/02/0900 Date/Time Sample Received @ Lab: 91/03/02/0900 Date Analyses Completed: 91/03/18

System Name: NORTH AMERICAN CHEMICAL - AKA KERR MCGEE System Number: 36-042
Name or Number of Sample Source: BOR #1

Water Type: (G/S) |S| Station Number: 036/042-BOR#1
Date/Time of Sample: |91|03|02|0900| User ID: TAN
YY MM DD HHMM

Analyzing Agency Code: 3761 Date Analysis Completed: |91|03|18|
YY MM DD

Submitted by:_____ Phone #:_____

Place an 'X' in box to delete all data for this station/date/time. |_|

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS		MCL	DLR
mg/L	Total Hardness (as CaCO3)	00900	12.8			
mg/L	Calcium (Ca)	00916	3.2			
mg/L	Magnesium (Mg)	00927	1.2			30.0
mg/L	Sodium (NA)	00929	95.0			
mg/L	Potassium (K)	00937	1.5			
Total Cations	Meq/L Value: 4.4					
mg/L	Total Alkalinity (AS CaCO3)	00410	183.2			
mg/L	Hydroxide (OH)	71830	< 1.0			
mg/L	Carbonate (CO3)	00445	< 1.0			
mg/L	Bicarbonate (HCO3)	00440	223.5			
mg/L*	Sulfate (SO4)	00945	16.0			
mg/L*	Chloride (Cl)	00940	9.4			
mg/L	Nitrate (as NO3)	71850	8.7		45	
mg/L	Fluoride (F) Temp. Depend.	00951	0.7	****		0.1
Total Anions	Meq/L Value: 4.4					
Std. Units	PH (Laboratory)	00403	9.1			
umho/cm**	Specific Conductance (E.C.)	00095	420.0		—	
mg/L***	Total Filterable Residue at 180C (TDS)	70300	243.6			
Units	Apparent Color (Unfiltered)	00081	20.0			
TON	Odor Threshold at 60 C	00086	2.0			1.0
NTU	Lab Turbidity	82079	61.0			
mg/L	MBAS	38260	< 0.02		0.5	0.02

* 250-500-600 ** 900-1600-2200 *** 500-100-1500 **** 1.4-2.4

BR-1 Shal Med

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* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS		MCL	DLR
ug/L	Arsenic (As)	01002	<	10	50	10
ug/L	Barium (Ba)	01007	<	100	1000	100
ug/L	Cadmium (Cd)	01027	<	1	10	1
ug/L	Chromium (Total Cr)	01034	<	10	50	10
ug/L	Copper (Cu)	01042	<	50	1000	50
ug/L	Iron (Fe)	01045	<	100	300	100
ug/L	Lead (Pb)	01051	<	5	50	5
ug/L	Manganese (Mn)	01055	<	30	50	30
ug/L	Mercury (Hg)	71900	<	1	2	1
ug/L	Selenium (Se)	01147	<	5	10	5
ug/L	Silver (Ag)	01077	<	10	50	10
ug/L	Zinc (Zn)	01092	<	50	5000	50
ug/L	Aluminum	01105	<	100	1000	100
	ORGANIC CHEMICALS					
ug/L	Endrin (Hexadrin)	39390			0.2	0.02
ug/L	Gamma-BHC (Lindane)	39340			4	0.4
ug/L	Methoxychlor	39480			100	10.0
ug/L	Toxaphene	39400			5	0.5
ug/L	2,4-D	39730			100	10.0
ug/L	2,4,5-TP (Silvex) (WEED-B-GON)	39045			10	
	ADDITIONAL ANALYSES					
NTU	Field Turbidity	82078				0.1
C	Source Temperature C	00010				
	Langelier Index Source Temp.	71814				
	Langelier Index at 60 C	71813				
Std. Units	Field PH	00400				
	Agressiveness Index	82383				
mg/L	Silica	00955				
mg/L	Phosphate	00650				
mg/L	Iodide	71865				
	Sodium Absorption Ratio	00931				
	Asbestos	81855				
mg/L	Ammonia (NH3-N)	00612				
mg/L	Nitrite Nitrogen (NO2-N)	00615				
mg/L	Nitrate Nitrogen (NO3-N)	00618				1.0
mg/L	Nitrite (N)	00620				
mg/L	Beryllium	01012				
mg/L	Boron	01020				
mg/L	Thallium	01059				
mg/L	Nickel	01067				
mg/L	Antimony	01097				0.05
mg/L	Lithium	01132				
mg/L	Cyanide	01291				

BR-1 Shal Med

Clinical Laboratory of San Bernardino, Inc.

1595 N. "D" St., San Bernardino, CA 92405
Phone (714) 885-3216
P. O. Box 329
San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report:	Lab Sample ID No. 91-1863
Laboratory Name: CLINICAL LAB OF SAN BERNARDINO	Signature of Lab Director: C. Jolley
Name of Sampler: Gail Moulton	Sampler Employed By: North American Chemical Co.
Date/Time Sample Collected: 91/03/02 09:00	Date/Time Sample Received @ Lab: 91/03/14
Were Holding Times Observed: Yes	
System Name: North American Chemical Co.	System Number:
Description of Sampling Point:	
Name/No. of Sample Source: BOR #1 1040' - 1060' IWV Test Well #1	Station Number:
Date & Time Sample: |9|1|0|3|0|2|0|9|0|0| Y Y M M D D T T T T	Water Type: G/S
User ID:	Submitted to SWQIS By:

MCL	REPORTING UNITS	CONSTITUENT	TT	STORET CODE	ANALYSES RESULTS
	Analyzing Agency			28	3761
	Date Analyses Completed			73672	910318 (Y Y M M D D)
5	pC/1	Total Alpha		1501	2.0
	pC/1	Total Alpha Counting Error		1502	1.3
50	pC/1	Total Beta		3501	
	pC/1	Total Beta Counting Error		3502	
	pC/1	Natural Uranium		28012	
3	pC/1	Total Radium 226		9501	
	pC/1	Total Radium 226 Counting Error		9502	
	pC/1	Total Radium 228		11501	
	pC/1	Total Radium 228 Counting Error		11502	
5	pC/1	Ra 226 + Ra 228		11503	
	pC/1	Ra 226 + Ra 228 Counting Error		11504	
20,000	pC/1	Total Tritium		7000	
	pC/1	Total Tritium Counting Error		7001	
8	pC/1	Total Strontium-90		13501	
	pC/1	Total Strontium-90 Counting Error		13502	

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

TITLE 22 CHEMICAL ANALYSIS

Date of Report: 03/18/91 Sample ID No.911864
Laboratory Signature Lab C. Jolliff
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director:
Name of Sampler:GAIL MOULTON Employed By:NAC 1500'-1520'
Date/Time Sample Collected: 91/03/02/0900 Date/Time Sample Received @ Lab: 91/03/02/0900 Date Analyses Completed: 91/03/18

System Name: NORTH AMERICAN CHEMICAL - AKA KERR MCGEE
System Number: 36-042
Name or Number of Sample Source: BOR #1

Water Type: (G/S) |S| Station Number: 036/042-BOR#1
Date/Time of Sample: |91|03|02|0900| (YY MM DD HHMM) User ID: TAN
Analyzing Agency Code: 3761 Date Analysis Completed: |91|03|18| (YY MM DD)
Submitted by:_____ Phone #:_____

Place an 'X' in box to delete all data for this station/date/time. |_|

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS	MCL	DLR
mg/L	Total Hardness (as CaCO3)	00900	72.0		
mg/L	Calcium (Ca)	00916	20.0		
mg/L	Magnesium (Mg)	00927	5.3		30.0
mg/L	Sodium (NA)	00929	110.2		
mg/L	Potassium (K)	00937	7.9		
Total Cations	Meq/L Value: 6.4				
mg/L	Total Alkalinity (AS CaCO3)	00410	248.8		
mg/L	Hydroxide (OH)	71830	< 1.0		
mg/L	Carbonate (CO3)	00445	< 1.0		
mg/L	Bicarbonate (HCO3)	00440	303.5		
mg/L*	Sulfate (SO4)	00945	25.3		
mg/L*	Chloride (Cl)	00940	14.3		
mg/L	Nitrate (as NO3)	71850	9.1	45	
mg/L	Fluoride (F) Temp. Depend.	00951	2.3	****	0.1
Total Anions	Meq/L Value: 6.2				
Std. Units	PH (Laboratory)	00403	8.8		
umho/cm**	Specific Conductance (E.C.)	00095	610.0	—	
mg/L***	Total Filterable Residue at 180C (TDS)	70300	353.8		
Units	Apparent Color (Unfiltered)	00081	> 70.0		
TON	Odor Threshold at 60 C	00086	2.0		1.0
NTU	Lab Turbidity	82079	> 200.0		
mg/L	MBAS	38260	< 0.02	0.5	0.02

* 250-500-600 ** 900-1600-2200 *** 500-100-1500 **** 1.4-2.4

BR-1 Deep Med

PAGE 2 OF 2 911864

* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS		MCL	DLR
ug/L	Arsenic (As)	01002	<	10	50	10
ug/L	Barium (Ba)	01007	<	100	1000	100
ug/L	Cadmium (Cd)	01027	<	1	10	1
ug/L	Chromium (Total Cr)	01034	<	10	50	10
ug/L	Copper (Cu)	01042	<	50	1000	50
ug/L	Iron (Fe)	01045	<	100	300	100
ug/L	Lead (Pb)	01051	<	5	50	5
ug/L	Manganese (Mn)	01055	<	30	50	30
ug/L	Mercury (Hg)	71900	<	1	2	1
ug/L	Selenium (Se)	01147	<	5	10	5
ug/L	Silver (Ag)	01077	<	10	50	10
ug/L	Zinc (Zn)	01092		150	5000	50
ug/L	Aluminum	01105	<	100	1000	100
	ORGANIC CHEMICALS					
ug/L	Endrin (Hexadrin)	39390			0.2	0.02
ug/L	Gamma-BHC (Lindane)	39340			4	0.4
ug/L	Methoxychlor	39480			100	10.0
ug/L	Toxaphene	39400			5	0.5
ug/L	2,4-D	39730			100	0
ug/L	2,4,5-TP (Silvex) (WEED-B-GON)	39045			10	
	ADDITIONAL ANALYSES					
NTU	Field Turbidity	82078				0.1
C	Source Temperature C	00010				
	Langelier Index Source Temp.	71814				
	Langelier Index at 60 C	71813				
Std. Units	Field PH	00400				
	Agressiveness Index	82383				
mg/L	Silica	00955				
mg/L	Phosphate	00650				
mg/L	Iodide	71865				
	Sodium Absorption Ratio	00931				
	Asbestos	81855				
mg/L	Ammonia (NH3-N)	00612				
mg/L	Nitrite Nitrogen (NO2-N)	00615				
mg/L	Nitrate Nitrogen (NO3-N)	00618				1.0
mg/L	Nitrite (N)	00620				
mg/L	Beryllium	01012				
mg/L	Boron	01020				
mg/L	Thallium	01059				
mg/L	Nickel	01067				
mg/L	Antimony	01097				0.05
mg/L	Lithium	01132				
mg/L	Cyanide	01291				

BR-1 Deep Med

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

TITLE 22 CHEMICAL ANALYSIS

Date of Report: 03/18/91 Sample ID No.911865
Laboratory Signature Lab C. Jolley
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director:
Name of Sampler:GAIL MOULTON Employed By:NAC 1750'-1770'
Date/Time Sample Collected: 91/03/02/0900 Date/Time Sample Received @ Lab: 91/03/02/0900 Date Analyses Completed: 91/03/18

System Name: NORTH AMERICAN CHEMICAL - AKA KERR MCGEE System Number: 36-042
Name or Number of Sample Source: BOR #1

Water Type: (G/S) |S| Station Number: 036/042-BOR#1
Date/Time of Sample: |91|03|02|0900| User ID: TAN
YY MM DD HHMM

Analyzing Agency Code: 3761 Date Analysis Completed: |91|03|18|
YY MM DD

Submitted by:_____ Phone #:_____

Place an 'X' in box to delete all data for this station/date/time. |_|

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS	MCL	DLR
mg/L	Total Hardness (as CaCO3)	00900	32.0		
mg/L	Calcium (Ca)	00916	9.6		
mg/L	Magnesium (Mg)	00927	1.9		30.0
mg/L	Sodium (NA)	00929	107.9		
mg/L	Potassium (K)	00937	4.8		
Total Cations	Meq/L Value: 5.4				
mg/L	Total Alkalinity (AS CaCO3)	00410	218.0		
mg/L	Hydroxide (OH)	71830	< 1.0		
mg/L	Carbonate (CO3)	00445	< 1.0		
mg/L	Bicarbonate (HCO3)	00440	266.0		
mg/L*	Sulfate (SO4)	00945	16.6		
mg/L*	Chloride (Cl)	00940	10.2		
mg/L	Nitrate (as NO3)	71850	7.1	45	
mg/L	Fluoride (F) Temp. Depend.	00951	3.3	****	0.1
Total Anions	Meq/L Value: 5.3				
Std. Units	PH (Laboratory)	00403	8.7		
umho/cm**	Specific Conductance (E.C.)	00095	500.0	—	
mg/L***	Total Filterable Residue at 180C (TDS)	70300	285.0		
Units	Apparent Color (Unfiltered)	00081	> 70.0		
TON	Odor Threshold at 60 C	00086	1.0		1.0
NTU	Lab Turbidity	82079	> 200.0		
mg/L	MBAS	38260	< 0.02	0.5	0.02

* 250-500-600 ** 900-1600-2200 *** 500-100-1500 **** 1.4-2.4

BR-1 Deep

Clinical Laboratory of San Bernardino, Inc.

1595 N. "D" St., San Bernardino, CA 92405
Phone (714) 885-3216
P. O. Box 329
San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report: 3/21/91	Lab Sample ID No. 91-1864
Laboratory Name: CLINICAL LAB OF SAN BERNARDINO	Signature of Lab Director: C. Jolley
Name of Sampler: Moulton	Sampler Employed By: North American Chemical Co.
Date/Time Sample Collected: 91/03/02 09:00	Date/Time Sample Received @ Lab: 91/03/14
	Were Holding Times Observed: Yes
System Name: North American Chemical Co.	System Number:
Description of Sampling Point:	
Name/No. of Sample Source: IWV Test Well #1 BOR #1 1500' - 1520'	Station Number:
Date & Time Sample: 9 1 0 3 0 2 0 9 0 0 (Y Y M M D D T T T T)	Water Type: G/S
	User ID:
	Submitted to SWQIS By:

MCL	REPORTING UNITS	CONSTITUENT	TT	STORET CODE	ANALYSES RESULTS
	Analyzing Agency			28	3761
	Date Analyses Completed			73672	910321 (Y Y M M D D)
5	pC/l	Total Alpha		1501	1.9 ± 3
	PC/l	Total Alpha Counting Error		1502	2.0
50	pC/l	Total Beta		3501	
	pC/l	Total Beta Counting Error		3502	
	pC/l	Natural Uranium		28012	
3	pC/l	Total Radium 226		9501	
	pC/l	Total Radium 226 Counting Error		9502	
	pC/l	Total Radium 228		11501	
	pC/l	Total Radium 228 Counting Error		11502	
5	pC/l	Ra 226 + Ra 228		11503	
	pC/l	Ra 226 + Ra 228 Counting Error		11504	
20,000	pC/l	Total Tritium		7000	
	pC/l	Total Tritium Counting Error		7001	
8	pC/l	Total Strontium-90		13501	
	pC/l	Total Strontium-90 Counting Error		13502	

BR-1 Deep Med

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* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS		MCL	DLR
ug/L	Arsenic (As)	01002	<	10	50	10
ug/L	Barium (Ba)	01007	<	100	1000	100
ug/L	Cadmium (Cd)	01027	<	1	10	1
ug/L	Chromium (Total Cr)	01034	<	10	50	10
ug/L	Copper (Cu)	01042	<	50	1000	50
ug/L	Iron (Fe)	01045	<	100	300	100
ug/L	Lead (Pb)	01051	<	5	50	5
ug/L	Manganese (Mn)	01055	<	30	50	30
ug/L	Mercury (Hg)	71900	<	1	2	1
ug/L	Selenium (Se)	01147	<	5	10	5
ug/L	Silver (Ag)	01077	<	10	50	10
ug/L	Zinc (Zn)	01092		50	5000	50
ug/L	Aluminum	01105	<	100	1000	100
	ORGANIC CHEMICALS					
ug/L	Endrin (Hexadrin)	39390			0.2	0.02
ug/L	Gamma-BHC (Lindane)	39340			4	0.4
ug/L	Methoxychlor	39480			100	10.0
ug/L	Toxaphene	39400			5	0.5
ug/L	2,4-D	39730			100	1[illegible]
ug/L	2,4,5-TP (Silvex) (WEED-B-GON)	39045			10	[illegible]
	ADDITIONAL ANALYSES					
NTU	Field Turbidity	82078				0.1
C	Source Temperature C	00010				
	Langelier Index Source Temp.	71814				
	Langelier Index at 60 C	71813				
Std. Units	Field PH	00400				
	Agressiveness Index	82383				
mg/L	Silica	00955				
mg/L	Phosphate	00650				
mg/L	Iodide	71865				
	Sodium Absorption Ratio	00931				
	Asbestos	81855				
mg/L	Ammonia (NH3-N)	00612				
mg/L	Nitrite Nitrogen (NO2-N)	00615				
mg/L	Nitrate Nitrogen (NO3-N)	00618				1.0
mg/L	Nitrite (N)	00620				
mg/L	Beryllium	01012				
mg/L	Boron	01020				
mg/L	Thallium	01059				
mg/L	Nickel	01067				
mg/L	Antimony	01097				0.05
mg/L	Lithium	01132				
mg/L	Cyanide	01291				

BR-1 Deep

Clinical Laboratory of San Bernardino, Inc.

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Phone (714) 885-3216
P. O. Box 329
San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report: 3/21/91	Lab Sample ID No. 91-1865
Laboratory Name: CLINICAL LAB OF SAN BERNARDINO	Signature of Lab Director: C. Jolley
Name of Sampler: Moulton	Sampler Employed By: North American Chemical
Date/Time Sample Collected: 91/03/02 09:00	Date/Time Sample Received @ Lab: 91/03/14
	Were Holding Times Observed: Yes
System Name: North American Chemical Co.	System Number:
Description of Sampling Point:	
Name/No. of Sample Source: IWV Test Well #1 BOR #1 1750' - 1770'	Station Number:
Date & Time of Sample: 9 1 0 3 0 2 0 9 0 0 (Y Y M M D D T T T T)	Water Type: G/S
User ID:	Submitted to SWQIS By:

MCL	REPORTING UNITS	CONSTITUENT	TT	STORET CODE	ANALYSES RESULTS
		Analyzing Agency		28	3761
		Date Analyses Completed		73672	910321 (Y Y M M D D)
5	pC/l	Total Alpha		1501	5.8
	pC/l	Total Alpha Counting Error		1502	1.2
50	pC/l	Total Beta		3501	
	pC/l	Total Beta Counting Error		3502	
	pC/l	Natural Uranium		28012	
3	pC/l	Total Radium 226		9501	
	pC/l	Total Radium 226 Counting Error		9502	
	pC/l	Total Radium 228		11501	
	pC/l	Total Radium 228 Counting Error		11502	
5	pC/l	Ra 226 + Ra 228		11503	
	pC/l	Ra 226 + Ra 228 Counting Error		11504	
20,000	pC/l	Total Tritium		7000	
	pC/l	Total Tritium Counting Error		7001	
8	pC/l	Total Strontium-90		13501	
	pC/l	Total Strontium-90 Counting Error		13502	

BR-1 Deep

Clinical Laboratory of San Bernardino, Inc. 1048

Post Office Box 329
1595 North " D " Street
San Bernardino, California 92402
Phone (714) 885-3216

TITLE 22 CHEMICAL ANALYSES

G,I,L 110F

Date Of Report: 11/09/1990	Lab Sample I.D. Number: 90/C/5175
Laboratory Name: Clinical Laboratory of San Bernardino, Inc.	Signature Lab Director: C. Jolliff
Name of Sampler: MOULTON	Sampler Employed By: Kerr McGee Chemical Corporation
Date/Time Sample Collected: 10/30/1990 15:00	Date / Time Sample Received at Lab.: 10/31/1990
Were Holding Times Observed?: Yes	
System Name: Kerr McGee Chemical Corporation	System Number:
Description of Sampling Point:	
Name/Number of Sample Source: BOR WELL #2 LOWER ZONR	Station Number:
Date and Time of Sample: 9 0 1 0 3 0 1 5 0 0 (Y Y M M D D T T T T)	Water Type: G/S
User I.D.:	Submitted to SWQIS By:

MCL	Reporting Units	Constituent	T T	Storet Code	Analyses Results
		Analyzing Agency (Laboratory)		28	3761
	mg/L	Total Hardness (as CaCO3)		900	420.0
	mg/L	Calcium (Ca)		916	113.1
	mg/L	Magnesium (mg)		927	2.2
	mg/L	Sodium (Na)		929	105.4
	mg/L	Potassium (K)		937	4.5
Total Cations	meq/L	Value: 5.5			

(Cations,Anions) 2.5 % Meq Difference.

	mg/L	Total Alkalinity (as CaCO3)		410	86.0
	mg/L	Hydroxide (OH)		71830	<1.0
	mg/L	Carbonate (CO3)		445	<1.0
	mg/L	Bicarbonate (HCO3)		440	104.9
*	mg/L +	Sulfate (SO4)		945	81.3
*	mg/L +	Chloride (Cl)		940	52.0
45	mg/L	Nitrate (NO3)		71850	4.8
1.4 - 2.4	mg/L	Fluoride(F) Temp. Depend.		951	8.4
Total Anions	meq/L	Value: 5.4			

Std UNITS		pH(Laboratory)		403	8.60
**	umho/cm +	Specific Conductance(E.C.)		95	5800
***	mg/L +	Total Filterable Residue at 180° C (TDS)		70300	3538
	UNITS	Apparent Color (Unfiltered)		81	
	TON	Odor Threshold at 60° C		86	
	NTU	Lab Turbidity		82079	
0.5	mg/L +	MBAS		38260	<0.02

* 250-500-600 ** 900-1600-2200 *** 500-1000-1500

DHS 8351(11/86)

BR-2 Deep

SYSTEM NAME AND NUMBER Kerr McGee Chemical Corporation No Entry

90/C/5175

* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

MCL	Reporting Units	Constituent	T T	Storet Code	Analyses Results
50	ug/L	Arsenic(As)		1002	14
1000	ug/L	Barium(Ba)		1007	<100
10	ug/L	Cadmium(Cd)		1027	<1
50	ug/L	Chromium(Total Cr)		1034	<10
1000	ug/L+	Copper(Cu)		1042	<50
300	ug/L+	Iron(Fe)		1045	1500
50	ug/L	Lead(Pb)		1051	15
50	ug/L+	Manganese(Mn)		1055	250
2	ug/L	Mercury(Hg)		71900	<1
10	ug/L	Selenium(Se)		1147	<5
50	ug/L	Silver(Ag)		1077	<10
5000	ug/L	Zinc(Zn)		1092	90

ORGANIC CHEMICALS

0.2	ug/L	Endrin		39390	
4	ug/L	Lindane		39340	
100	ug/L	Methoxychlor		39480	
5	ug/L	Toxaphene		39400	
100	ug/L	2,4-D		39730	
10	ug/L	2,4,5-TP Silvex		39045	
		Date ORGANIC Analysis Completed		73672	Y Y M M D D

ADDITIONAL ANALYSES

	NTU	Field Turbidity		82078	
	C	Source Temperture		10	43.3
		Langlier Index Source Temp.		71814	0.54
		Langelier Index at 60°C		71813	0.79
	Std. Units	Field pH		00400	8.60
		Aggressive Index		82383	-12.1
	mg/L	Silica		00955	
	mg/L	Phosphate		00650	
		DISSOLVED ALUMINUM			0.26

RADIOLOGICAL

5	pC/L	Gross Alpha		1501	
	pC/L	Counting Error 95%		1502	
50	pC/L	Gross Beta		3501	
	pC/L	Counting Error 95%		3502	

+ Indicates Secondary Drinking Water Standards

BR-2 Deep

Clinical Laboratory of San Bernardino, Inc.

1595 N. "D" St., San Bernardino, CA 92405
Phone (714) 885-3216
P. O. Box 329
San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report: NOV 0 8 1990	Lab Sample ID No. 90/C/5175
Laboratory Name: CLINICAL LAB OF SAN BERNARDINO	Signature of Lab Director: C. Jolley
Name of Sampler: Moulton	Sampler Employed By: Kerr McGeee Chemical Corp.
Date/Time Sample Collected: 10/30/90 03:00	Date/Time Sample Received @ Lab: 10/31/90
Were Holding Times Observed: Yes	
System Name: Kerr McGeee Chemical Corporation	System Number:
Description of Sampling Point:	
Name/No. of Sample Source: BOR WELL 2 LOWER ZONE	Station Number:
Date & of Time Sample: 9 0 1 0 3 0 0 3 0 0 (Y Y M M D D T T T T)	Water Type: G/S
User ID:	Submitted to SWQIS By:

MCL	REPORTING UNITS	CONSTITUENT	TT	STORET CODE	ANALYSES RESULTS
		Analyzing Agency		28	3761
		Date Analyses Completed		73672	901107 (Y Y M M D D)
5	pC/l	Total Alpha		1501	5.1
	PC/l	Total Alpha Counting Error		1502	1.2
50	pC/l	Total Beta		3501	
	pC/l	Total Beta Counting Error		3502	
	pC/l	Natural Uranium		28012	
3	pC/l	Total Radium 226		9501	
	pC/l	Total Radium 226 Counting Error		9502	
	pC/l	Total Radium 228		11501	
	pC/l	Total Radium 228 Counting Error		11502	
5	pC/l	Ra 226 + Ra 228		11503	
	pC/l	Ra 226 + Ra 228 Counting Error		11504	
20,000	pC/l	Total Tritium		7000	
	pC/l	Total Tritium Counting Error		7001	
8	pC/l	Total Strontium-90		13501	
	pC/l	Total Strontium-90 Counting Error		13502	

BR-2 Deep

Clinical Laboratory of San Bernardino, Inc. 1048

Post Office Box 329
1595 North " D " Street
San Bernardino, California 92402
Phone (714) 885-3216

TITLE 22 CHEMICAL ANALYSES

G,I,L,97

Date Of Report: 11/09/1990	Lab Sample I.D. Number: 90/C/5174
Laboratory Name: Clinical Laboratory of San Bernardino, Inc.	Signature Lab Director: C. Jolley
Name of Sampler: MOULTON	Sampler Employed By: Kerr McGee Chemical Corporation
Date/Time Sample Collected: 10/30/1990 16:00	Date / Time Sample Received at Lab.: 10/31/1990 — Were Holding Times Observed?: Yes
System Name: Kerr McGee Chemical Corporation	System Number:
Description of Sampling Point:	
Name/Number of Sample Source: BOR WELL 2 MID ZONE	Station Number:
Date and Time of Sample: 9 0 1 0 3 0 1 6 0 0 (Y Y M M D D T T T T)	Water Type: G/S — User I.D.: — Submitted to SWQIS By:

MCL	Reporting Units	Constituent	T T	Storet Code	Analyses Results
		Analyzing Agency (Laboratory)		28	3761
	mg/L	Total Hardness (as CaCO3)		900	22.0
	mg/L	Calcium (Ca)		916	4.0
	mg/L	Magnesium (mg)		927	2.9
	mg/L	Sodium (Na)		929	75.1
	mg/L	Potassium (K)		937	3.2
Total Cations	meq/L	Value: 3.8			

(Cations,Anions) 4.4 % Meq Difference.

	mg/L	Total Alkalinity (as CaCO3)		410	118.0
	mg/L	Hydroxide (OH)		71830	<1.0
	mg/L	Carbonate (CO3)		445	<1.0
	mg/L	Bicarbonate (HCO3)		440	144.0
*	mg/L +	Sulfate (SO4)		945	27.6
*	mg/L +	Chloride (Cl)		940	20.8
45	mg/L	Nitrate (NO3)		71850	1.6
1.4 - 2.4	mg/L	Fluoride(F) Temp. Depend.		951	1.4
Total Anions	meq/L	Value: 3.6			

	Std UNITS	pH(Laboratory)		403	9.90
**	umho/cm +	Specific Conductance(E.C.)		95	400
***	mg/L +	Total Filterable Residue at 180°C (TDS)		70300	240.0
	UNITS	Apparent Color (Unfiltered)		81	
	TON	Odor Threshold at 60°C		86	
	NTU	Lab Turbidity		82079	
0.5	mg/L +	MBAS		38260	<0.02

* 250-500-600 ** 900-1600-2200 *** 500-1000-1500

DHS 8351(11/86)

BR-2 Medium

SYSTEM NAME AND NUMBER Kerr McGee Chemical Corporation No Entry

90/C/5174

* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

MCL	Reporting Units	Constituent	T T	Storet Code	Analyses Results
50	ug/L	Arsenic(As)		1002	17
1000	ug/L	Barium(Ba)		1007	<100
10	ug/L	Cadmium(Cd)		1027	2
50	ug/L	Chromium(Total Cr)		1034	<10
1000	ug/L+	Copper(Cu)		1042	<50
300	ug/L+	Iron(Fe)		1045	160
50	ug/L	Lead(Pb)		1051	11
50	ug/L+	Manganese(Mn)		1055	70
2	ug/L	Mercury(Hg)		71900	<1
10	ug/L	Selenium(Se)		1147	<5
50	ug/L	Silver(Ag)		1077	<10
5000	ug/L	Zinc(Zn)		1092	100

ORGANIC CHEMICALS

0.2	ug/L	Endrin		39390	
4	ug/L	Lindane		39340	
100	ug/L	Methoxychlor		39480	
5	ug/L	Toxaphene		39400	
100	ug/L	2,4-D		39730	
10	ug/L	2,4,5-TP Silvex		39045	
		Date ORGANIC Analysis Completed		73672	Y Y M M D D

ADDITIONAL ANALYSES

	NTU	Field Turbidity		82078	
	C	Source Temperture		10	36.1
		Langlier Index Source Temp.		71814	1.37
		Langelier Index at 60°C		71813	1.74
	Std. Units	Field pH		00400	9.90
		Aggressive Index		82383	13.0
	mg/L	Silica		00955	
	mg/L	Phosphate		00650	
		DISSOLVED ALUMINUM			0.79

RADIOLOGICAL

5	pC/L	Gross Alpha		1501	
	pC/L	Counting Error 95%		1502	
50	pC/L	Gross Beta		3501	
	pC/L	Counting Error 95%		3502	

+ indicates Secondary Drinking Water Standards

BR-2 Medium

Clinical Laboratory of San Bernardino, Inc.

1595 N. "D" St., San Bernardino, CA 92405
Phone (714) 885-3216
P. O. Box 329
San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report: NOV 0 8 1990	Lab Sample ID No. 90/C/5174
Laboratory Name: CLINICAL LAB OF SAN BERNARDINO	Signature of Lab Director: C. Jolley
Name of Sampler: Moulton	Sampler Employed By: Kerr Mc Gee Chemical Corp.
Date/Time Sample Collected: 10/30/90 15:00	Date/Time Sample Received @ Lab: 10/31/90
Were Holding Times Observed: Yes	
System Name: Kerr McGee Chemical Corporation	System Number:
Description of Sampling Point:	
Name/No. of Sample Source: BOR Well 2. MID ZONE	Station Number:
Date & Time of Sample: 9 0 1 0 3 0 1 5 0 0 (Y Y M M D D T T T T)	Water Type: G/S
User ID:	Submitted to SWQIS By:

MCL	REPORTING UNITS	CONSTITUENT	TT	STORET CODE	ANALYSES RESULTS
		Analyzing Agency		28	3761
		Date Analyses Completed		73672	901107 (Y Y M M D D)
5	pC/l	Total Alpha		1501	0.2
	pC/l	Total Alpha Counting Error		1502	0.7
50	pC/l	Total Beta		3501	
	pC/l	Total Beta Counting Error		3502	
	pC/l	Natural Uranium		28012	
3	pC/l	Total Radium 226		9501	
	pC/l	Total Radium 226 Counting Error		9502	
	pC/l	Total Radium 228		11501	
	pC/l	Total Radium 228 Counting Error		11502	
5	pC/l	Ra 226 + Ra 228		11503	
	pC/l	Ra 226 + Ra 228 Counting Error		11504	
20,000	pC/l	Total Tritium		7000	
	pC/l	Total Tritium Counting Error		7001	
8	pC/l	Total Strontium-90		13501	
	pC/l	Total Strontium-90 Counting Error		13502	

BR-2 Medium

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

TITLE 22 CHEMICAL ANALYSIS

Date of Report: 04/03/91 Sample ID No.912079
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: C. Jolley
Name of Sampler:MOULTON Employed By:NAC ~~1850 1870 FEET~~
Date/Time Sample Collected: 91/03/18/1400 Date/Time Sample Received @ Lab: 91/03/18/1400 Date Analyses Completed: 91/04/03

System Name: NORTH AMERICAN CHEMICAL - AKA KERR MCGEE System Number: 36-042
Name or Number of Sample Source: BOR #1 Well 3

Water Type: (G/S) |S| Station Number: 036/042-BOR#1
Date/Time of Sample: |91|03|18|1400| (YY MM DD HHMM) User ID: TAN

Analyzing Agency Code: 3761 Date Analysis Completed: |91|04|03| (YY MM DD)
Submitted by:_____ Phone #:_____

Place an 'X' in box to delete all data for this station/date/time. |_|

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS		MCL	DLR
mg/L	Total Hardness (as CaCO3)	00900	96.0			
mg/L	Calcium (Ca)	00916	17.6			
mg/L	Magnesium (Mg)	00927	12.6			30.0
mg/L	Sodium (NA)	00929	91.4			
mg/L	Potassium (K)	00937	5.9			
	Total Cations Meq/L Value: 6.0					
mg/L	Total Alkalinity (AS CaCO3)	00410	132.8			
mg/L	Hydroxide (OH)	71830		< 1.0		
mg/L	Carbonate (CO3)	00445		< 1.0		
mg/L	Bicarbonate (HCO3)	00440	162.0			
mg/L*	Sulfate (SO4)	00945	78.5			
mg/L*	Chloride (Cl)	00940	47.3			
mg/L	Nitrate (as NO3)	71850	11.1		45	
mg/L	Fluoride (F) Temp. Depend.	00951	0.5		****	0.1
	Total Anions Meq/L Value: 5.8					
Std. Units	PH (Laboratory)	00403	8.4			
umho/cm**	Specific Conductance (E.C.)	00095	600.0			
mg/L***	Total Filterable Residue at 180C (TDS)	70300	360.0			
Units	Apparent Color (Unfiltered)	00081	70.0			
TON	Odor Threshold at 60 C	00086	1.0			1.0
NTU	Lab Turbidity	82079	71.0			
mg/L	MBAS	38260		< 0.02	0.5	0.02

* 250-500-600 ** 900-1600-2200 *** 500-100-1500 **** 1.4-2.4

BR-3 Shallow

PAGE 2 OF 2 912079

* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS		MCL	DLR
ug/L	Arsenic (As)	01002	<	10	50	10
ug/L	Barium (Ba)	01007	<	100	1000	100
ug/L	Cadmium (Cd)	01027	<	1	10	1
ug/L	Chromium (Total Cr)	01034	<	10	50	10
ug/L	Copper (Cu)	01042	<	50	1000	50
ug/L	Iron (Fe)	01045		4550	300	100
ug/L	Lead (Pb)	01051		130	50	5
ug/L	Manganese (Mn)	01055	<	30	50	30
ug/L	Mercury (Hg)	71900	<	1	2	1
ug/L	Selenium (Se)	01147	<	5	10	5
ug/L	Silver (Ag)	01077	<	10	50	10
ug/L	Zinc (Zn)	01092	<	50	5000	50
ug/L	Aluminum	01105		870	1000	100
	ORGANIC CHEMICALS					
ug/L	Endrin (Hexadrin)	39390			0.2	0.02
ug/L	Gamma-BHC (Lindane)	39340			4	0.4
ug/L	Methoxychlor	39480			100	10.0
ug/L	Toxaphene	39400			5	0.5
ug/L	2,4-D	39730			100	10
ug/L	2,4,5-TP (Silvex) (WEED-B-GON)	39045			10	
	ADDITIONAL ANALYSES					
NTU	Field Turbidity	82078				0.1
C	Source Temperature C	00010				
	Langelier Index Source Temp.	71814				
	Langelier Index at 60 C	71813				
Std. Units	Field PH	00400				
	Agressiveness Index	82383				
mg/L	Silica	00955				
mg/L	Phosphate	00650				
mg/L	Iodide	71865				
	Sodium Absorption Ratio	00931				
	Asbestos	81855				
mg/L	Ammonia (NH3-N)	00612				
mg/L	Nitrite Nitrogen (NO2-N)	00615				
mg/L	Nitrate Nitrogen (NO3-N)	00618				1.0
mg/L	Nitrite (N)	00620				
mg/L	Beryllium	01012				
mg/L	Boron	01020				
mg/L	Thallium	01059				
mg/L	Nickel	01067				
mg/L	Antimony	01097				0.05
mg/L	Lithium	01132				
mg/L	Cyanide	01291				

BR-3 Shallow

Clinical Laboratory of San Bernardino, Inc.

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Phone (714) 885-3216
P. O. Box 329
San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report: 4/3/91	Lab Sample ID No. 91-2079
Laboratory Name: CLINICAL LAB OF SAN BERNARDINO	Signature of Lab Director: Melodi Grini
Name of Sampler: Moulton	Sampler Employed By: North American Chemical
Date/Time Sample Collected: 91/03/18 11:00	Date/Time Sample Received @ Lab: 91/03/18
Were Holding Times Observed: Yes	
System Name: North American Chemical	System Number:
Description of Sampling Point:	
Name/No. of Sample Source: BOR WELL 3 IWV Study ~~1850 1870~~	Station Number:
Date & Time Sample: Y Y M M D D T T T T	Water Type: G/S
User ID:	Submitted to SWQIS By:

MCL	REPORTING UNITS	CONSTITUENT	TT	STORET CODE	ANALYSES RESULTS
		Analyzing Agency		28	3761
		Date Analyses Completed		73672	910402 (Y Y M M D D)
5	pC/l	Total Alpha		1501	1.8
	PC/l	Total Alpha Counting Error		1502	1.5
50	pC/l	Total Beta		3501	
	pC/l	Total Beta Counting Error		3502	
	pC/l	Natural Uranium		28012	
3	pC/l	Total Radium 226		9501	
	pC/l	Total Radium 226 Counting Error		9502	
	pC/l	Total Radium 228		11501	
	pC/l	Total Radium 228 Counting Error		11502	
5	pC/l	Ra 226 + Ra 228		11503	
	pC/l	Ra 226 + Ra 228 Counting Error		11504	
20,000	pC/l	Total Tritium		7000	
	pC/l	Total Tritium Counting Error		7001	
8	pC/l	Total Strontium-90		13501	
	pC/l	Total Strontium-90 Counting Error		13502	

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

TITLE 22 CHEMICAL ANALYSIS

Date of Report: 04/03/91 Sample ID No.912080
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: C. Jolley
Name of Sampler:MOULTON Employed By:NAC ~~650-670 FEET~~
Date/Time Sample Collected: 91/03/18/1000 Date/Time Sample Received @ Lab: 91/03/18/1000 Date Analyses Completed: 91/04/03

System Name: NORTH AMERICAN CHEMICAL - AKA KERR MCGEE System Number: 36-042
Name or Number of Sample Source: BOR #1 Well 3

* Water Type: (G/S) |S| Station Number: 036/042-BOR#1 *
* Date/Time of Sample: |91|03|18|1000| User ID: TAN *
* YY MM DD HHMM *
* *
* Analyzing Agency Code: 3761 Date Analysis Completed: |91|04|03| *
* YY MM DD *
* Submitted by:_____ Phone #:_____ *

Place an 'X' in box to delete all data for this station/date/time. |_|

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS		MCL	DLR
mg/L	Total Hardness (as CaCO3)	00900	128.0			
mg/L	Calcium (Ca)	00916	38.4			
mg/L	Magnesium (Mg)	00927	7.8			30.0
mg/L	Sodium (NA)	00929	255.9			
mg/L	Potassium (K)	00937	7.9			
Total Cations	Meq/L Value: 13.9					
mg/L	Total Alkalinity (AS CaCO3)	00410	113.2			
mg/L	Hydroxide (OH)	71830	<	1.0		
mg/L	Carbonate (CO3)	00445	<	1.0		
mg/L	Bicarbonate (HCO3)	00440	138.1			
mg/L*	Sulfate (SO4)	00945	65.6			
mg/L*	Chloride (Cl)	00940	372.0			
mg/L	Nitrate (as NO3)	71850	<	1.0	45	
mg/L	Fluoride (F) Temp. Depend.	00951	1.1		****	0.1
Total Anions	Meq/L Value: 14.2					
Std. Units	PH (Laboratory)	00403	7.4			
umho/cm**	Specific Conductance (E.C.)	00095	1540.0		—	
mg/L***	Total Filterable Residue at 180C (TDS)	70300	954.8			
Units	Apparent Color (Unfiltered)	00081	70.0			
TON	Odor Threshold at 60 C	00086	2.0			1.0
NTU	Lab Turbidity	82079	5.9			
mg/L	MBAS	38260	<	0.02	0.5	0.02

* 250-500-600 ** 900-1600-2200 *** 500-100-1500 **** 1.4-2.4

BR-3 Medium

PAGE 2 OF 2 912080

* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS		MCL	DLR
ug/L	Arsenic (As)	01002	<	10	50	10
ug/L	Barium (Ba)	01007		120	1000	100
ug/L	Cadmium (Cd)	01027	<	1	10	1
ug/L	Chromium (Total Cr)	01034	<	10	50	10
ug/L	Copper (Cu)	01042	<	50	1000	50
ug/L	Iron (Fe)	01045		2290	300	100
ug/L	Lead (Pb)	01051	<	5	50	5
ug/L	Manganese (Mn)	01055		100	50	30
ug/L	Mercury (Hg)	71900	<	1	2	1
ug/L	Selenium (Se)	01147	<	5	10	5
ug/L	Silver (Ag)	01077	<	10	50	10
ug/L	Zinc (Zn)	01092	<	50	5000	50
ug/L	Aluminum	01105		1550	1000	100
	ORGANIC CHEMICALS					
ug/L	Endrin (Hexadrin)	39390			0.2	0.02
ug/L	Gamma-BHC (Lindane)	39340			4	0.4
ug/L	Methoxychlor	39480			100	10.0
ug/L	Toxaphene	39400			5	0.5
ug/L	2,4-D	39730			100	10
ug/L	2,4,5-TP (Silvex) (WEED-B-GON)	39045			10	
	ADDITIONAL ANALYSES					
NTU	Field Turbidity	82078				0.1
C	Source Temperature C	00010				
	Langelier Index Source Temp.	71814				
	Langelier Index at 60 C	71813				
Std. Units	Field PH	00400				
	Agressiveness Index	82383				
mg/L	Silica	00955				
mg/L	Phosphate	00650				
mg/L	Iodide	71865				
	Sodium Absorption Ratio	00931				
	Asbestos	81855				
mg/L	Ammonia (NH3-N)	00612				
mg/L	Nitrite Nitrogen (NO2-N)	00615				
mg/L	Nitrate Nitrogen (NO3-N)	00618				1.0
mg/L	Nitrite (N)	00620				
mg/L	Beryllium	01012				
mg/L	Boron	01020				
mg/L	Thallium	01059				
mg/L	Nickel	01067				
mg/L	Antimony	01097				0.05
mg/L	Lithium	01132				
mg/L	Cyanide	01291				

BR-3 Medium

Clinical Laboratory of San Bernardino, Inc.

1595 N. "D" St., San Bernardino, CA 92405
Phone (714) 885-3216
P. O. Box 329
San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report: 4/3/91	Lab Sample ID No. 91-2080
Laboratory Name: CLINICAL LAB OF SAN BERNARDINO	Signature of Lab Director: Mehdi Siami
Name of Sampler: Moulton	Sampler Employed By: North American Chemical
Date/Time Sample Collected: 91/03/18 10:00	Date/Time Sample Received @ Lab: 91/03/18
Were Holding Times Observed: Yes	
System Name: North American Chemical	System Number:
Description of Sampling Point:	
Name/No. of Sample Source: BOR WELL 3 ~~650~~ ~~670~~ IWV Study	Station Number:
Date & Time Sample: Y Y M M D D T T T T	Water Type: G/S
User ID:	Submitted to SWQIS By:

MCL	REPORTING UNITS	CONSTITUENT	TT	STORET CODE	ANALYSES RESULTS
		Analyzing Agency		28	3 7 6 1
		Date Analyses Completed		73672	9 1 0 4 0 2 (Y Y M M D D)
5	pC/l	Total Alpha		1501	0.7
	pC/l	Total Alpha Counting Error		1502	1.6
50	pC/l	Total Beta		3501	
	pC/l	Total Beta Counting Error		3502	
	pC/l	Natural Uranium		28012	
3	pC/l	Total Radium 226		9501	
	pC/l	Total Radium 226 Counting Error		9502	
	pC/l	Total Radium 228		11501	
	pC/l	Total Radium 228 Counting Error		11502	
5	pC/l	Ra 226 + Ra 228		11503	
	pC/l	Ra 226 + Ra 228 Counting Error		11504	
20,000	pC/l	Total Tritium		7000	
	pC/l	Total Tritium Counting Error		7001	
8	pC/l	Total Strontium-90		13501	
	pC/l	Total Strontium-90 Counting Error		13502	

RR-3 Medium

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

TITLE 22 CHEMICAL ANALYSIS

Date of Report: 04/04/91 Sample ID No.912078
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: C. Jolley
Name of Sampler:MOULTON Employed By:NAC ~~1320 1340~~
Date/Time Sample Collected: 91/03/18/1400 Date/Time Sample Received @ Lab: 91/03/18/1400 Date Analyses Completed: 91/04/04

System Name: NORTH AMERICAN CHEMICAL - AKA KERR MCGEE System Number: 36-042
Name or Number of Sample Source: BOR #1 well 3

* Water Type: (G/S) |S| Station Number: 036/042-BOR#1
* Date/Time of Sample: |91|03|18|1400| (YY MM DD HHMM) User ID: TAN
* Analyzing Agency Code: 3761 Date Analysis Completed: |91|04|04| (YY MM DD)
* Submitted by:_____ Phone #:_____

Place an 'X' in box to delete all data for this station/date/time. |_|

EPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS		MCL	DLR
mg/L	Total Hardness (as CaCO3)	00900	1400.0			
mg/L	Calcium (Ca)	00916	496.6			
mg/L	Magnesium (Mg)	00927	38.9			30.(
mg/L	Sodium (NA)	00929	1536.4			
mg/L	Potassium (K)	00937	14.6			
Total Cations	Meq/L Value: 95.2					
mg/L	Total Alkalinity (AS CaCO3)	00410	32.0			
mg/L	Hydroxide (OH)	71830	<	1.0		
mg/L	Carbonate (CO3)	00445	<	1.0		
mg/L	Bicarbonate (HCO3)	00440	39.0			
mg/L*	Sulfate (SO4)	00945	257.5			
mg/L*	Chloride (Cl)	00940	3200.0			
mg/L	Nitrate (as NO3)	71850	38.1		45	
mg/L	Fluoride (F) Temp. Depend.	00951	5.4		****	0.:
Total Anions	Meq/L Value: 97.0					
Std. Units	PH (Laboratory)	00403	7.2			
umho/cm**	Specific Conductance (E.C.)	00095	10700.			
mg/L***	Total Filterable Residue at 180C (TDS)	70300	6634.0		—	
Units	Apparent Color (Unfiltered)	00081	40.0			
TON	Odor Threshold at 60 C	00086	3.0			1.(
NTU	Lab Turbidity	82079	71.0			
mg/L	MBAS	38260	<	0.02	0.5	0.0:

* 250-500-600 ** 900-1600-2200 *** 500-100-1500 **** 1.4-2.4

BR-3 Deep

 912078

* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS		MCL	DLR
ug/L	Arsenic (As)	01002	<	10	50	10
ug/L	Barium (Ba)	01007		100	1000	100
ug/L	Cadmium (Cd)	01027	<	1	10	1
ug/L	Chromium (Total Cr)	01034	<	10	50	10
ug/L	Copper (Cu)	01042	<	50	1000	50
ug/L	Iron (Fe)	01045		780	300	100
ug/L	Lead (Pb)	01051	<	5	50	5
ug/L	Manganese (Mn)	01055		280	50	30
ug/L	Mercury (Hg)	71900	<	1	2	1
ug/L	Selenium (Se)	01147	<	5	10	5
ug/L	Silver (Ag)	01077	<	10	50	10
ug/L	Zinc (Zn)	01092	<	50	5000	50
ug/L	Aluminum	01105		240	1000	100
	ORGANIC CHEMICALS					
ug/L	Endrin (Hexadrin)	39390			0.2	0.02
ug/L	Gamma-BHC (Lindane)	39340			4	0.4
ug/L	Methoxychlor	39480			100	10.0
ug/L	Toxaphene	39400			5	0.5
ug/L	2,4-D	39730			100	10
ug/L	2,4,5-TP (Silvex) (WEED-B-GON)	39045			10	
	ADDITIONAL ANALYSES					
NTU	Field Turbidity	82078				0.1
C	Source Temperature C	00010				
	Langelier Index Source Temp.	71814				
	Langelier Index at 60 C	71813				
Std. Units	Field PH	00400				
	Agressiveness Index	82383				
mg/L	Silica	00955				
mg/L	Phosphate	00650				
mg/L	Iodide	71865				
	Sodium Absorption Ratio	00931				
	Asbestos	81855				
mg/L	Ammonia (NH3-N)	00612				
mg/L	Nitrite Nitrogen (NO2-N)	00615				
mg/L	Nitrate Nitrogen (NO3-N)	00618				1.0
mg/L	Nitrite (N)	00620				
mg/L	Beryllium	01012				
mg/L	Boron	01020				
mg/L	Thallium	01059				
mg/L	Nickel	01067				
mg/L	Antimony	01097				0.05
mg/L	Lithium	01132				
mg/L	Cyanide	01291				

BR-3 Deep

Clinical Laboratory of San Bernardino, Inc.

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Phone (714) 885-3216
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San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report: 4/3/91	Lab Sample ID No. 91-2078
Laboratory Name: CLINICAL LAB OF SAN BERNARDINO	Signature of Lab Director: Mehdi Ghami
Name of Sampler: Moulton	Sampler Employed By: North American Chemical

Date/Time Sample Collected:	Date/Time Sample Received @ Lab:	Were Holding Times Observed:
91/03/18 14:00	91/03/18	Yes

System Name: North American Chemical — System Number:

Description of Sampling Point:

Name/No. of Sample Source: BOR WELL 3 IWV Study 1320 - 1340 — Station Number:

Date & Time Sample: Y Y M M D D T T T T	Water Type: G/S	User ID:	Submitted to SWQIS By:

MCL	REPORTING UNITS	CONSTITUENT	TT	STORET CODE	ANALYSES RESULTS
	Analyzing Agency			28	3 7 6 1
	Date Analyses Completed			73672	9 1 0 4 0 2 (Y Y M M D D)
5	pC/l	Total Alpha		1501	1 1 . 4
	pC/l	Total Alpha Counting Error		1502	7 . 2
50	pC/l	Total Beta		3501	
	pC/l	Total Beta Counting Error		3502	
	pC/l	Natural Uranium		28012	
3	pC/l	Total Radium 226		9501	
	pC/l	Total Radium 226 Counting Error		9502	
	pC/l	Total Radium 228		11501	
	pC/l	Total Radium 228 Counting Error		11502	
5	pC/l	Ra 226 + Ra 228		11503	
	pC/l	Ra 226 + Ra 228 Counting Error		11504	
20,000	pC/l	Total Tritium		7000	
	pC/l	Total Tritium Counting Error		7001	
8	pC/l	Total Strontium-90		13501	
	pC/l	Total Strontium-90 Counting Error		13502	

PP-3 Deep

Clinical Laboratory of San Bernardino, Inc. 1048

Post Office Box 329
1595 North " D " Street
San Bernardino, California 92402
Phone (714) 885-3216

TITLE 22 CHEMICAL ANALYSES

G,I,L 90F

Date Of Report: 11/09/1990	Lab Sample I.D. Number: 90/C/5176
Laboratory Name: Clinical Laboratory of San Bernardino, Inc.	Signature Lab Director: C. Jolley
Name of Sampler: MOULTON	Sampler Employed By: Kerr McGee Chemical Corporation
Date/Time Sample Collected: 10/30/1990 12:30	Date / Time Sample Received at Lab.: 10/31/1990
Were Holding Times Observed?: Yes	
System Name: Kerr McGee Chemical Corporation	System Number:
Description of Sampling Point:	
Name/Number of Sample Source: BOR WELL 4 SEC 25 T26S R39E	Station Number:
Date and Time of Sample: 9 0 1 0 3 0 1 2 3 0 (Y Y M M D D T T T T)	Water Type: G/S
User I.D.:	Submitted to SWDIS By:

MCL	Reporting Units	Constituent	TT	Storet Code	Analyses Results
		Analyzing Agency (Laboratory)		28	3761
	mg/L	Total Hardness (as CaCO3)		900	9.6
	mg/L	Calcium (Ca)		916	1.3
	mg/L	Magnesium (mg)		927	1.6
	mg/L	Sodium (Na)		929	65.3
	mg/L	Potassium (K)		937	0.4
Total Cations	meg/L	Value: 3.0			

(Cations,Anions) 3.7 % Meq Difference.

	mg/L	Total Alkalinity (as CaCO3)		410	112.0
	mg/L	Hydroxide (OH)		71830	< 1.0
	mg/L	Carbonate (CO3)		445	< 1.0
	mg/L	Bicarbonate (HCO3)		440	136.6
*	mg/L +	Sulfate (SO4)		945	19.1
*	mg/L +	Chloride (Cl)		940	15.9
45	mg/L	Nitrate (NO3)		71850	< 1.0
1.4 - 2.4	mg/L	Fluoride(F) Temp. Depend.		951	1.1
Total Anions	meg/L	Value: 3.2			

	Std UNITS	pH(Laboratory)		403	8.80
**	umho/cm +	Specific Conductance(E.C.)		95	310
***	mg/L +	Total Filterable Residue at 180°C (TDS)		70300	1182.9
	UNITS	Apparent Color (Unfiltered)		81	-
	TON	Odor Threshold at 60°C		86	
	NTU	Lab Turbidity		82079	
0.5	mg/L +	MBAS		38260	< 0.02

* 250-500-600 ** 900-1600-2200 *** 500-1000-1500

DHS 8351(11/86)

BR-4

SYSTEM NAME AND NUMBER Kerr McGee Chemical Corporation No Entry

90/C/5176

* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

MCL	Reporting Units	Constituent	T T	Storet Code	Analyses Results
50	ug/L	Arsenic(As)		1002	15
1000	ug/L	Barium(Ba)		1007	<100
10	ug/L	Cadmium(Cd)		1027	<1
50	ug/L	Chromium(Total Cr)		1034	<10
1000	ug/L+	Copper(Cu)		1042	<50
300	ug/L+	Iron(Fe)		1045	360
50	ug/L	Lead(Pb)		1051	<2
50	ug/L+	Manganese(Mn)		1055	<30
2	ug/L	Mercury(Hg)		71900	<1
10	ug/L	Selenium(Se)		1147	<5
50	ug/L	Silver(Ag)		1077	<10
5000	ug/L	Zinc(Zn)		1092	70

ORGANIC CHEMICALS

0.2	ug/L	Endrin		39390	
4	ug/L	Lindane		39340	
100	ug/L	Methoxychlor		39480	
5	ug/L	Toxaphene		39400	
100	ug/L	2,4-D		39730	
10	ug/L	2,4,5-TP Silvex		39045	
		Date ORGANIC Analysis Completed		73672	YYMMDD

ADDITIONAL ANALYSES

	NTU	Field Turbidity		82078	
	C	Source Temperture		10	32.2
		Langlier Index Source Temp.		71814	7.49
		Langelier Index at 60°C		71813	7.93
	Std. Units	Field pH		00400	8.80
		Aggressive Index		82383	-11.4
	mg/L	Silica		00955	
	mg/L	Phosphate		00650	
		DISSOLVED ALUMINUM			0.49

RADIOLOGICAL

5	pC/L	Gross Alpha		1501	
	pC/L	Counting Error 95%		1502	
50	pC/L	Gross Beta		3501	
	pC/L	Counting Error 95%		3502	
					-

+ Indicates Secondary Drinking Water Standards

BR-4

Clinical Laboratory of San Bernardino, Inc.

1595 N. "D" St., San Bernardino, CA 92405
Phone (714) 885-3216
P. O. Box 329
San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report: NOV 0 8 1990	Lab Sample ID No. 90/C/5176
Laboratory Name: CLINICAL LAB OF SAN BERNARDINO	Signature of Lab Director: C. Jolley
Name of Sampler: Moulton	Sampler Employed By: Kerr McGee Chemical Corp.

Date/Time Sample Collected:	Date/Time Sample Received @ Lab:	Were Holding Times Observed:
10/30/90 12:30	10/31/90	Yes

System Name: Kerr McGee Chemical Corporation	System Number:
Description of Sampling Point:	
Name/No. of Sample Source: BOR WELL Wec.25 T26S R39E	Station Number:

Date & Time of Sample: (Y Y M M D D T T T T)	Water Type: (G/S)	User ID:	Submitted to SWQIS By:
9 0 1 0 3 0 1 2 3 0			

MCL	REPORTING UNITS	CONSTITUENT	TT	STORET CODE	ANALYSES RESULTS
		Analyzing Agency		28	3761
		Date Analyses Completed		73672	901107 (Y Y M M D D)
5	pC/l	Total Alpha		1501	0.8
	pC/l	Total Alpha Counting Error		1502	0.7
50	pC/l	Total Beta		3501	
	pC/l	Total Beta Counting Error		3502	
	pC/l	Natural Uranium		28012	
3	pC/l	Total Radium 226		9501	
	pC/l	Total Radium 226 Counting Error		9502	
	pC/l	Total Radium 228		11501	
	pC/l	Total Radium 228 Counting Error		11502	
5	pC/l	Ra 226 + Ra 228		11503	
	pC/l	Ra 226 + Ra 228 Counting Error		11504	
20,000	pC/l	Total Tritium		7000	
	pC/l	Total Tritium Counting Error		7001	
8	pC/l	Total Strontium-90		13501	
	pC/l	Total Strontium-90 Counting Error		13502	

BR-4

CLINICAL LABORATORY OF SAN BERNARDINO
1595 NORTH "D"STREET
SAN BERNARDINO, CA. 92405

GENERAL MINERAL & PHYSICAL, INORGANIC, & RADIOLOGICAL CHEMICAL ANALYSIS

Date of Report: 01/15/92 Sample ID No. 92-0122
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director:
Name of Sampler:M. STONER Employed By:U.S. NAVY
Date/Time Sample Collected: 92/01/06/1000 Date/Time Sample Received @ Lab: 92/01/08/1700 Date Analyses Completed: 92/01/14

System Name: INDIAN WELLS VALLEY CWD - RIDGECREST System Number: 15-017
Name or Number of Sample Source: IWV MONITORING WELL #5 840' TO 860'

User ID: CYA Station Number:
Date/Time of Sample: |92|01|06|1000| (YY MM DD TTTT) Laboratory Code: 3761
Date Analysis Completed: |92|01|14| (YY MM DD)
Submitted by:_____ Phone #:_____

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DLR
	mg/L	Total Hardness (as CaCO3)	00900	128.0	
	mg/L	Calcium (Ca)	00916	20.8	
	mg/L	Magnesium (Mg)	00927	18.5	
	mg/L	Sodium (Na)	00929	154.6	
	mg/L	Potassium (K)	00937	9.4	
Total Cations		Meq/L Value: 9.5			
	mg/L	Total Alkalinity (AS CaCO3)	00410	186.0	
	mg/L	Hydroxide (OH)	71830	< 1.0	
	mg/L	Carbonate (CO3)	00445	< 1.0	
	mg/L	Bicarbonate (HCO3)	00440	226.9	
*	mg/L*	Sulfate (SO4)	00945	149.6	
*	mg/L*	Chloride (Cl)	00940	85.5	
45	mg/L	Nitrate (as NO3)	71850	< 1.0	
****	mg/L	Fluoride (F) Temp. Depend.	00951	1.1	0.1
Total Anions		Meq/L Value: 9.3			
	Std. Units	PH (Laboratory)	00403	8.5	
**	umho/cm**	Specific Conductance (E.C.)	00095	1000.0	
***	mg/L***	Total Filterable Residue at 180C (TDS)	70300	533.5	
	Units	Apparent Color (Unfiltered)	00081	< 70.0	
	TON	Odor Threshold at 60 C	00086	2.0	
	NTU	Lab Turbidity	82079	58.0	
0.5	mg/L	MBAS	38260	< 0.02	

* 250-500-600 ** 900-1600-2200 *** 500-1000-1500 **** 1.4-2.4

BR-5 Shallow

PAGE 2 OF 2 INORGANIC CHEMICALS 92-0122

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	
1000	ug/L	Aluminum (Al)	01105	210.00	100.0
50	ug/L	Arsenic (As)	01002	17.00	10.0
1000	ug/L	Barium (Ba)	01007	<100.00	100.0
10	ug/L	Cadmium (Cd)	01027	< 1.00	1.0
50	ug/L	Chromium (Total Cr)	01034	< 10.00	10.0
1000	ug/L	Copper (Cu)	01042	< 50.00	50.0
300	ug/L	Iron (Fe)	01045	2655.0	100.0
50	ug/L	Lead (Pb)	01051	11.00	5.0
50	ug/L	Manganese (Mn)	01055	175.00	30.0
2	ug/L	Mercury (Hg)	71900	< 1.00	1.0
10	ug/L	Selenium (Se)	01147	< 5.00	5.0
50	ug/L	Silver (Ag)	01077	< 10.00	10.0
5000	ug/L	Zinc (Zn)	01092	< 50.00	50.0
		RADIOACTIVITY ANALYSIS			
15	PCi/L	Total Alpha	01501		
	PCi/L	Total Alpha Counting Error	01502		
50	PCi/L	Total Beta	03501		4.0
	PCi/L	Total Beta Counting Error	03502		
20	PCi/L	Natural Uranium	28012		2.0
	PCi/L	Total Radium 226	09501		0.5
	PCi/L	Total Radium 226 Counting Error	09502		
	PCi/L	Total Radium 228	11501		5
	PCi/L	Total Radium 228 Counting Error	11502		
5	PCi/L	Ra 226 + Ra 228	11503		
	PCi/L	Ra 226 + Ra 228 Counting Error	11504		
	PCi/L	Radon 222	82303		100.0
	PCi/L	Radon 222 Counting Error	82302		
20000	PCi/L	Total Tritium	07000		1.0
	PCi/L	Total Tritium Counting Error	07001		
8	PCi/L	Total Strontium - 90	13501		2.0
	PCi/L	Total Strontium - 90 Counting Error	13502		
		ADDITIONAL ANALYSES			
	NTU	Field Turbidity	82078		0.1
	C	Source Temperature C	00010		
		Langelier Index Source Temp.	71814		
		Langelier Index at 60 C	71813		
	Std. Units	Field PH	00400		
		Agressiveness Index	82383		
	mg/L	Silica	00955		
	mg/L	Phosphate	00650		
	mg/L	Iodide	71865		
		Sodium Absorption Ratio	00931		
		Asbestos	81855		
	mg/L	Boron	01020		

BR-5 Shallow

CLINICAL LABORATORY OF SAN BERNARDINO
1595 NORTH "D"STREET
SAN BERNARDINO, CA. 92405

RADIOACTIVITY ANALYSIS

Date of Report: 01/17/92 Sample ID No.92-0122-
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director:
Name of Sampler:M. STONER Employed By:INDIAN WELLS VALLEY CWD
Date/Time Sample Collected: 92/01/06/1000 | Date/Time Sample Received @ Lab: 92/01/08/1700 | Date Analyses Completed: 92/01/17

System Name: INDIAN WELLS VALLEY CWD - RIDGECREST
System Number: 15-017
Name or Number of Sample Source: IWV MONITORING WELL #5 840' TO 860'

User ID: CYA Station Number:
Date/Time of Sample: |92|01|06|1000| (YY MM DD TTTT) Laboratory Code: 3761
Date Analysis Completed: |92|01|17| (YY MM DD)
Submitted by:_____ Phone #:_____

MCL	REPORT UNITS	CONSTITUENT	STORET CODE	ANALYSES RESULTS	DLR
15	pCi/l	Total Alpha	01501	4.0	
	pCi/l	Total Alpha Counting Error	01502	2.4	
50	pCi/l	Total Beta	03501		4.0
	pCi/l	Total Beta Counting Error	03502		
20	pCi/l	Natural Uranium	28012		2.0
	pCi/l	Total Radium 226	09501		.5
	pCi/l	Total Radium 226 Counting Error	09502		
	pCi/l	Total Radium 228	11501		.5
	pCi/l	Total Radium 228 Counting Error	11502		
5	pCi/l	Ra 226 + Ra 228	11503		
	pCi/l	Ra 226 + Ra 228 Counting Error	11504		
20000	pCi/l	Total Tritium	07000		1.0
	pCi/l	Total Tritium Counting Error	07001		
8	pCi/l	Total Strontium - 90	13501		2.0
	pCi/l	Total Strontium - 90 Counting Error	13502		
	pCi/l	Total Radon 222	82303		100.0
	pCi/l	Total Radon 222 Counting Error	82302		

BR-5 Shallow

CLINICAL LABORATORY OF SAN BERNARDINO
1595 NORTH "D"STREET
SAN BERNARDINO, CA. 92405

GENERAL MINERAL & PHYSICAL, INORGANIC, & RADIOLOGICAL CHEMICAL ANALYSIS

Date of Report: 01/15/92 Sample ID No.92-0123
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director:
Name of Sampler:M. STONEREmployed By:U.S. NAVY
Date/Time Sample Collected: 92/01/06/1000 Date/Time Sample Received @ Lab: 92/01/08/1700 Date Analyses Completed: 92/01/14

System Name: INDIAN WELLS VALLEY CWD - RIDGECREST System Number: 15-017
Name or Number of Sample Source: IWV MONITORING WELL #5 1580' - 1600'

User ID: CYA Station Number:
Date/Time of Sample: |92|01|06|1000| YY MM DD TTTT Laboratory Code: 3761
Date Analysis Completed: |92|01|14| YY MM DD
Submitted by: Phone #:

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DLR
	mg/L	Total Hardness (as CaCO3)	00900	80.0	
	mg/L	Calcium (Ca)	00916	20.8	
	mg/L	Magnesium (Mg)	00927	6.8	
	mg/L	Sodium (Na)	00929	346.0	
	mg/L	Potassium (K)	00937	9.0	
Total Cations		Meq/L Value: 16.9			
	mg/L	Total Alkalinity (AS CaCO3)	00410	626.0	
	mg/L	Hydroxide (OH)	71830	< 1.0	
	mg/L	Carbonate (CO3)	00445	< 1.0	
	mg/L	Bicarbonate (HCO3)	00440	763.7	
*	mg/L*	Sulfate (SO4)	00945	65.5	
*	mg/L*	Chloride (Cl)	00940	72.7	
45	mg/L	Nitrate (as NO3)	71850	< 1.0	
****	mg/L	Fluoride (F) Temp. Depend.	00951	2.1	0.1
Total Anions		Meq/L Value: 16.0			
	Std. Units	PH (Laboratory)	00403	8.7	
**	umho/cm**	Specific Conductance (E.C.)	00095	1880.0	
***	mg/L***	Total Filterable Residue at 180C (TDS)	70300	836.9	
	Units	Apparent Color (Unfiltered)	00081	> 70.0	
	TON	Odor Threshold at 60 C	00086	1.0	
	NTU	Lab Turbidity	82079	> 200.0	
0.5	mg/L	MBAS	38260	< 0.02	

* 250-500-600 ** 900-1600-2200 *** 500-1000-1500 **** 1.4-2.4

BR-5 Medium

PAGE 2 OF 2 INORGANIC CHEMICALS 92-0123

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	D
1000	ug/L	Aluminum (Al)	01105	460.00	100.0
50	ug/L	Arsenic (As)	01002	80.00	10.0
1000	ug/L	Barium (Ba)	01007	170.00	100.0
10	ug/L	Cadmium (Cd)	01027	< 1.00	1.0
50	ug/L	Chromium (Total Cr)	01034	< 10.00	10.0
1000	ug/L	Copper (Cu)	01042	< 50.00	50.0
300	ug/L	Iron (Fe)	01045	1520.0	100.0
50	ug/L	Lead (Pb)	01051	6.00	5.0
50	ug/L	Manganese (Mn)	01055	165.00	30.0
2	ug/L	Mercury (Hg)	71900	< 1.00	1.0
10	ug/L	Selenium (Se)	01147	< 5.00	5.0
50	ug/L	Silver (Ag)	01077	< 10.00	10.0
5000	ug/L	Zinc (Zn)	01092	< 50.00	50.0
		RADIOACTIVITY ANALYSIS			
15	PCi/L	Total Alpha	01501		
	PCi/L	Total Alpha Counting Error	01502		
50	PCi/L	Total Beta	03501		4.0
	PCi/L	Total Beta Counting Error	03502		
20	PCi/L	Natural Uranium	28012		2.0
	PCi/L	Total Radium 226	09501		0.5
	PCi/L	Total Radium 226 Counting Error	09502		
	PCi/L	Total Radium 228	11501		5
	PCi/L	Total Radium 228 Counting Error	11502		
5	PCi/L	Ra 226 + Ra 228	11503		
	PCi/L	Ra 226 + Ra 228 Counting Error	11504		
	PCi/L	Radon 222	82303		100.0
	PCi/L	Radon 222 Counting Error	82302		
20000	PCi/L	Total Tritium	07000		1.0
	PCi/L	Total Tritium Counting Error	07001		
8	PCi/L	Total Strontium - 90	13501		2.0
	PCi/L	Total Strontium - 90 Counting Error	13502		
		ADDITIONAL ANALYSES			
	NTU	Field Turbidity	82078		0.1
	C	Source Temperature C	00010		
		Langelier Index Source Temp.	71814		
		Langelier Index at 60 C	71813		
	Std. Units	Field PH	00400		
		Agressiveness Index	82383		
	mg/L	Silica	00955		
	mg/L	Phosphate	00650		
	mg/L	Iodide	71865		
		Sodium Absorption Ratio	00931		
		Asbestos	81855		
	mg/L	Boron	01020		

BR-5 Medium

CLINICAL LABORATORY OF SAN BERNARDINO
1595 NORTH "D"STREET
SAN BERNARDINO, CA. 92405

RADIOACTIVITY ANALYSIS

Date of Report: 01/17/92 Sample ID No.92-0123
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director:
Name of Sampler:M. STONEREmployed By:INDIAN WELLS VALEY CWD
Date/Time Sample Collected: 92/01/06/1000 | Date/Time Sample Received @ Lab: 92/01/08/1700 | Date Analyses Completed: 92/01/17

System Name: INDIAN WELLS VALLEY CWD - RIDGECREST
System Number: 15-017
Name or Number of Sample Source: IWV MONITORING WELL #5 1580' - 1600'

User ID: CYA
Station Number:
Date/Time of Sample: |92|01|06|1000| (YY MM DD TTTT)
Laboratory Code: 3761
Date Analysis Completed: |92|01|17| (YY MM DD)
Submitted by:_____ Phone #:_____

MCL	REPORT UNITS	CONSTITUENT	STORET CODE	ANALYSES RESULTS	DLR
15	pCi/l	Total Alpha	01501	9.8	
	pCi/l	Total Alpha Counting Error	01502	2.3	
50	pCi/l	Total Beta	03501		4.0
	pCi/l	Total Beta Counting Error	03502		
20	pCi/l	Natural Uranium	28012		2.0
	pCi/l	Total Radium 226	09501		.5
	pCi/l	Total Radium 226 Counting Error	09502		
	pCi/l	Total Radium 228	11501		.5
	pCi/l	Total Radium 228 Counting Error	11502		
5	pCi/l	Ra 226 + Ra 228	11503		
	pCi/l	Ra 226 + Ra 228 Counting Error	11504		
20000	pCi/l	Total Tritium	07000		1.0
	pCi/l	Total Tritium Counting Error	07001		
8	pCi/l	Total Strontium - 90	13501		2.0
	pCi/l	Total Strontium - 90 Counting Error	13502		
	pCi/l	Total Radon 222	82303		100.0
	pCi/l	Total Radon 222 Counting Error	82302		

BR-5 Medium

CLINICAL LABORATORY OF SAN BERNARDINO
1595 NORTH "D"STREET
SAN BERNARDINO, CA. 92405

GENERAL MINERAL & PHYSICAL, INORGANIC, & RADIOLOGICAL CHEMICAL ANALYSIS

Date of Report: 01/15/92 Sample ID No.92-0124
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director:
Name of Sampler:M. STONEREmployed By·U.S. NAVY
Date/Time Sample Collected: 92/01/06/1000 Date/Time Sample Received @ Lab: 92/01/08/1700 Date Analyses Completed: 92/01/14

System Name: INDIAN WELLS VALLEY CWD - RIDGECREST System Number: 15-017
Name or Number of Sample Source: IWY MONITORING WELL #5 1970' - 1990'

User ID: CYA Station Number:
Date/Time of Sample: |92|01|06|1000| (YY MM DD TTTT) Laboratory Code: 3761
Date Analysis Completed: |92|01|14| (YY MM DD)
Submitted by: Phone #:

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DLR
	mg/L	Total Hardness (as CaCO3)	00900	108.0	
	mg/L	Calcium (Ca)	00916	14.4	
	mg/L	Magnesium (Mg)	00927	17.5	
	mg/L	Sodium (Na)	00929	334.9	
	mg/L	Potassium (K)	00937	8.7	
Total Cations		Meq/L Value: 16.9			
	mg/L	Total Alkalinity (AS CaCO3)	00410	708.0	
	mg/L	Hydroxide (OH)	71830	< 1.0	
	mg/L	Carbonate (CO3)	00445	< 1.0	
	mg/L	Bicarbonate (HCO3)	00440	863.8	
*	mg/L*	Sulfate (SO4)	00945	90.0	
*	mg/L*	Chloride (Cl)	00940	68.6	
45	mg/L	Nitrate (as NO3)	71850	< 1.0	
****	mg/L	Fluoride (F) Temp. Depend.	00951	1.5	0.1
Total Anions		Meq/L Value: 18.0			
	Std. Units	PH (Laboratory)	00403	8.7	
**	umho/cm**	Specific Conductance (E.C.)	00095	1870.0	
***	mg/L***	Total Filterable Residue at 180C (TDS)	70300	890.6	
	Units	Apparent Color (Unfiltered)	00081	>70.0	
	TON	Odor Threshold at 60 C	00086	1.0	
	NTU	Lab Turbidity	82079	>200.0	
0.5	mg/L	MBAS	38260	< 0.02	

* 250-500-600 ** 900-1600-2200 *** 500-1000-1500 **** 1.4-2.4

BR-5 Deep

CLINICAL LABORATORY OF SAN BERNARDINO
1595 NORTH "D"STREET
SAN BERNARDINO, CA. 92405

GENERAL MINERAL & PHYSICAL, INORGANIC, & RADIOLOGICAL CHEMICAL ANALYSIS

Date of Report: 02/06/92 Sample ID No.92-0736
Laboratory Name: CLINICAL LABORATORIES OF SAN BERNARDINO Signature Lab Director:
Name of Sampler:UNKNOWNEmployed By:UNKNOWN
Date/Time Sample Collected: 92/01/10/0000 Date/Time Sample Received @ Lab: 92/01/29/1700 Date Analyses Completed: 92/02/05

System Name: INDIAN WELLS VALLEY CWD - RIDGECREST System Number: 15-017
Name or Number of Sample Source: BOR WELL 6 330 - 350

* User ID: CYA Station Number:
* Date/Time of Sample: |92|01|10|0000| (YY MM DD TTTT) Laboratory Code: 3761
* Date Analysis Completed: |92|02|05| (YY MM DD)
* Submitted by:_____ Phone #:_____

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DLR
	mg/L	Total Hardness (as CaCO3)	00900	100.0	
	mg/L	Calcium (Ca)	00916	24.0	
	mg/L	Magnesium (Mg)	00927	9.7	
	mg/L	Sodium (Na)	00929	198.7	
	mg/L	Potassium (K)	00937	13.9	
Total Cations		Meq/L Value: 11.0			
	mg/L	Total Alkalinity (AS CaCO3)	00410	192.0	
	mg/L	Hydroxide (OH)	71830	< 1.0	
	mg/L	Carbonate (CO3)	00445	< 1.0	
	mg/L	Bicarbonate (HCO3)	00440	234.2	
*	mg/L*	Sulfate (SO4)	00945	168.0	
*	mg/L*	Chloride (Cl)	00940	76.0	
45	mg/L	Nitrate (as NO3)	71850	6.3	
****	mg/L	Fluoride (F) Temp. Depend.	00951	3.7	0.1
Total Anions		Meq/L Value: 9.8			
	Std. Units	PH (Laboratory)	00403	8.9	
**	umho/cm**	Specific Conductance (E.C.)	00095	1030.0	
***	mg/L***	Total Filterable Residue at 180C (TDS)	70300	596.3	
	Units	Apparent Color (Unfiltered)	00081	15.0	
	TON	Odor Threshold at 60 C	00086	2.0	
	NTU	Lab Turbidity	82079	180.0	
0.5	mg/L	MBAS	38260	< 0.02	

* 250-500-600 ** 900-1600-2200 *** 500-1000-1500 **** 1.4-2.4

BR-6 Shallow

Appendix D
DEPTH-TO-GROUNDWATER MEASUREMENTS

Indian Wells Valley Groundwater Project
Depth to Water Measurements

All measurements on April 9, 1991, by Dennis Watt using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

Well	Piezometer		Depth to Water	Comments	
BR-3	medium	(shal)	?		
	tall	(med)	?		
	short	(deep)	308.44		
Black oily coating on inside of pipe. Due to "skin friction" could only get sounder down to about 150-170 feet.					
BR-1	tall	(shal)	181.30	TOC to TOP -------->	.12
	next tall	(sh/med)	166.62	(Top of Casing to)	.25
	next short	(dp/med)	173.84	(Top of 2" pipe)	.36
	short	(deep)	184.96		.39
BR-2	tall(blue)	(shal)	275.9		.20
	(yellow)	(med)	272.13		.40
	(red)	(deep)	281.19		.42
NR-1	(red)	(shal)	94.14		.91
	(yellow)	(med)	4.0 psi (GAGE)		
	(white)	(deep)	111.51		.93
NR-2	tall	(shal)	131.72		.32
	medium	(med)	142.51		.59
	short	(deep)	141.98		.79
BR-4	10:20am		245.19		
	5:25pm		245.05		

Indian Wells Valley Groundwater Project
Depth to Water Measurements

All measurements on April 29, 1991, by Dennis Watt and Bill Green using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

Well	Piezometer		Depth to Water	TOC to TOP	Comments
BR-3	medium	(shal)	?		Could not get sounder down. Heavy black "oil" in pipes.
	tall	(med)	?		
	short	(deep)	?		
BR-1	tall	(shal)	182.18	.12	
	next tall	(sh/med)	171.80	.25	
	next short	(dp/med)	178.65	.36	
	short	(deep)	188.88	.39	
BR-2	tall(blue)	(shal)	275.84	.20	
	(yellow)	(med)	272.27	.40	
	(red)	(deep)	281.21	.42	
NR-1	(red)	(shal)	93.25	.91	
	(yellow)	(med)	4.5 psi (GAGE)		
	(white)	(deep)	110.84	.93	
NR-2	tall	(shal)	132.04	.32	
	medium	(med)	141.77	.59	
	short	(deep)	142.14	.79	
BR-4			246.67		

Indian Wells Valley Groundwater Project
Depth to Water Measurements

All measurements on June 11, 1991, by Dennis Watt using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

Well	Piezometer		Depth to Water	Comments
			TOC to TOP	
BR-3	medium	(shal)	326.2	
	tall	(med)	?	Can't get sounder down
	short	(deep)	307.66	
BR-1	tall	(shal)	183.09	.12
	next tall	(sh/med)	176.30	.25
	next short	(dp/med)	183.00	.36
	short	(deep)	193.37	.39
BR-2	tall (blue)	(shal)	275.85	.20
	(yellow)	(med)	272.30	.40
	(red)	(deep)	282.41	.42
NR-1	(red)	(shal)	94.58	.91
	(yellow)	(med)	5.5 psi (GAGE)	
	(white)	(deep)	98.98	.93
NR-2	tall	(shal)	132.48	.32
	medium	(med)	136.92	.59
	short	(deep)	137.95	.79
BR-4			251.83	

Indian Wells Valley Groundwater Project
Depth to Water Measurements

All measurements on June 24, 25, and 26, 1991, by Dennis Watt using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

Well	Piezometer		Depth to Water	TOC to TOP	Comments
BR-3	medium	(shal)	326.90		6-26
	tall	(med)	?		
	short	(deep)	?		
BR-1	tall	(shal)	183.38	.12	6-24
	next tall	(sh/med)	177.15	.25	
	next short	(dp/med)	183.83	.36	
	short	(deep)	194.51	.39	
BR-2	tall(blue)	(shal)	275.86	.20	6-26
	(yellow)	(med)	272.30	.40	
	(red)	(deep)	281.46	.42	
NR-1	(red)	(shal)	93.85	.91	6-26
	(yellow)	(med)	ZERO ? psi (GAGE)		
	(white)	(deep)	99.20	.93	
NR-2	tall	(shal)	132.33	.32	6-25
	medium	(med)	137.07	.59	
	short	(deep)	138.13	.79	
BR-4			253.98		6-25

Indian Wells Valley Groundwater Project
Depth to Water Measurements

All measurements on August 22, 1991, by Dennis Watt using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

Well	Piezometer		Depth to Water	TOC to TOP	Comments
BR-3	medium	(shal)	325.4	Measure	Try chalk
	tall	(med)	?	next	next time
	short	(deep)	309.15	time!!	
BR-1	tall	(shal)	184.7	.12	
	next tall	(sh/med)	179.91	.25	
	next short	(dp/med)	185.53	.36	
	short	(deep)	194.49	.39	
BR-2	tall (blue)	(shal)	276.22	.20	
	(yellow)	(med)	272.45	.40	
	(red)	(deep)	281.66	.42	
NR-1	(red)	(shal)	94.11	.91	
	(yellow)	(med)	0 psi (GAGE)		
	(white)	(deep)	99.75	.93	
NR-2	tall	(shal)	132.72	.32	
	medium	(med)	140.12	.59	
	short	(deep)	139.52	.79	
BR-4			260.34		

Indian Wells Valley Groundwater Project
Depth to Water Measurements

All measurements on October 22, 1991, by Dennis Watt using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

Well	Piezometer		Depth to Water	Comments
			TOC to TOP	
BR-3	medium	(shal)	327.07	.43
	tall	(med)	?	.39
	short	(deep)	308.18	.64
BR-1	tall	(shal)	184.78	.12
	next tall	(sh/med)	181.07	.25
	next short	(dp/med)	186.42	.36
	short	(deep)	195.68	.39
BR-2	tall(blue)	(shal)	275.92	.20
	(yellow)	(med)	272.32	.40
	(red)	(deep)	281.57	.42
NR-1	(red)	(shal)	94.15	.91
	(yellow)	(med)	78.55?	Measure
	(white)	(deep)	100.35	.93
NR-2	tall	(shal)	132.82	.32
	medium	(med)	140.70	.59
	short	(deep)	139.18	.79
MW-32	tall	(shal)	?	Measure!
	next tall	(sh/med)	242.32	.42
	next short	(dp/med)	240.63	.50
	short	(deep)	239.65	.64
BR-4			258.88	

Indian Wells Valley Groundwater Project
Depth to Water Measurements

All measurements on December 12, 1991, by Dennis Watt using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

Well	Piezometer	Depth to Water	TOC to TOP	Comments
BR-3	medium (shal)	327.20	.43	
	tall (med)	310.	.39	
	short (deep)	307.95	.64	
BR-1	tall (shal)	184.97	.12	
	next tall (sh/med)	181.81	.25	
	next short (dp/med)	187.07	.36	
	short (deep)	196.94	.39	
BR-2	tall (blue) (shal)	276.02	.20	
	(red) (med)	272.52	.40	
	(yellow) (deep)	281.79	.42	
NR-1	(red) (shal)	93.95	.91	
	(yellow) (med)	76.51	.33	Valve top = TOP
	(white) (deep)	100.11	.93	
NR-2	tall (shal)	132.35	.32	
	medium (med)	140.27	.59	
	short (deep)	138.77	.79	
MW-32	tall (shal)	240.7	.31	
	next tall (sh/med)	241.25	.42	
	next short (dp/med)	240.65	.50	
	short (deep)	239.71	.64	
BR-4		251.70		

Indian Wells Valley Groundwater Project
Depth to Water Measurements

All measurements on January 28, 1992, by Dennis Watt (USBR) and Mike Hasting (NWC Geothermal Office) using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

Well	Piezometer		Depth to Water	TOC to TOP	Comments
BR-3	medium	(shal)	327.25	.43	Re-sound bottoms
	tall	(med)	?	.39	(Done 1-93)
	short	(deep)	308.04	.64	(tall = med piezo)
BR-1	tall	(shal)	185.04	.12	
	next tall	(sh/med)	182.23	.25	
	next short	(dp/med)	187.55	.36	
	short	(deep)	197.38	.39	
BR-2	tall (blue)	(shal)	276.02	.20	
	(yellow)	(med)	272.52	.40	Re-sound bottom
	(red)	(deep)	281.84	.42	
BR-5	tall	(shal)	334.75	.19	Pressure equalization
	medium	(med)	341.51	.41	(hiss) while unscrew-
	short	(deep)	343.05	.64	ing the cap!!
BR-6	tall	(shal)	163.56	.38	
	medium	(med)	163.88	.70	
	short	(deep)	148.81	1.08	
NR-2	tall	(shal)	132.20	.32	
	medium	(med)	139.96	.59	
	short	(deep)	138.42	.79	
NR-1	(red)	(shal)	93.41	.91	
	(yellow)	(med)	74.88	.33	Valve top = TOP
	(white)	(deep)	99.73	.93	
MW-32	tall	(shal)	240.64	.31	
	next tall	(sh/med)	241.06	.42	
	next short	(dp/med)	240.32	.50	
	short	(deep)	239.58	.64	
BR-4			247.11	Measure	

Indian Wells Valley Groundwater Project
Depth to Water Measurements

All measurements in mid-February 1992 by Dennis Watt using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

Well	Piezometer		Depth to Water	TOC to TOP	Comments
BR-3	medium	(shal)	326.95	.43	Feb. 20
	tall	(med)	310+/-	.39	
	short	(deep)	307.92	.64	
BR-1	tall	(shal)	187.54	.12	Feb. 20
	next tall	(sh/med)	182.10	.25	
	next short	(dp/med)	187.56	.36	
	short	(deep)	197.64	.39	
BR-2	tall(blue)	(shal)	275.57	.20	Feb. 19
	(yellow)	(med)	272.07	.40	
	(red)	(deep)	281.68	.42	
BR-5	tall	(shal)	334.68	.19	Feb. 12
	medium	(med)	340.93	.41	
	short	(deep)	342.78	.64	
BR-6	tall	(shal)	163.13	.38	Feb. 11
	medium	(med)	163.71	.70	
	short	(deep)	148.63	1.08	
NR-2	tall	(shal)	132.02	.32	Feb. 20
	medium	(med)	139.57	.59	
	short	(deep)	138.02	.79	
NR-1	(red)	(shal)	93.65	.91	Feb. 20
	(yellow)	(med)	74.09	.33	
	(white)	(deep)	99.21	.93	
MW-32	tall	(shal)	240.64	.31	Feb. 11
	next tall	(sh/med)	240.94	.42	
	next short	(dp/med)	240.13	.50	
	short	(deep)	239.37	.64	
BR-4			247.11		

Indian Wells Valley Groundwater Project
Depth to Water Measurements

All measurements on May 18 and 19, 1992, by Dennis Watt using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

Well	Piezometer		Depth to Water	TOC to TOP	Comments
BR-3	medium	(shal)	327.52	.43	Re-sound bottoms
	tall	(med)	?	.39	(Done 1-93)
	short	(deep)	308.50	.64	(tall = med piezo)
BR-1	tall	(shal)	185.20	.12	
	next tall	(sh/med)	182.96	.25	
	next short	(dp/med)	188.38	.36	
	short	(deep)	198.08	.39	
BR-2	tall(blue)	(shal)	276.03	.20	
	(yellow)	(med)	272.40	.40	Re-sound bottoms
	(red)	(deep)	281.74	.42	
BR-5	tall	(shal)	_____	.19	Different lock.
	medium	(med)	_____	.41	Will cut next time.
	short	(deep)	_____	.64	
BR-6	tall	(shal)	163.97	.38	
	medium	(med)	164.15	.70	
	short	(deep)	148.74	1.08	
NR-2	tall	(shal)	132.49	.32	
	medium	(med)	139.46	.59	
	short	(deep)	137.82	.79	
NR-1	(red)	(shal)	94.62	.91	
	(yellow)	(med)	71.65	.33	Valve top = TOP
	(white)	(deep)	98.95	.93	
MW-32	tall	(shal)	241.15	.31	
	next tall	(sh/med)	241.09	.42	
	next short	(dp/med)	240.40	.50	
	short	(deep)	239.58	.64	
BR-4			250.82	Measure	

Indian Wells Valley Groundwater Project
Depth to Water Measurements

All measurements on September 10, 1992, by Dennis Watt using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

Well	Piezometer		Depth to Water	TOC to TOP	Elev TOP	Water Elev	Comments
BR-3	medium	(shal)	328.03	.43	2511.43	2183.40	
	tall	(med)	(310?)	.39	2511.48	2201.48	
	short	(deep)	310.51	.64	2511.22	2200.71	
BR-1	tall	(shal)	185.33	.12	2852.05	2666.72	
	next tall	(sh/med)	182.88	.25	2851.91	2669.03	
	next short	(dp/med)	187.38	.36	2851.80	2664.42	
	short	(deep)	195.00	.39	2851.77	2656.77	
BR-2	tall(blue)	(shal)	276.14	.20	2658.64	2382.50	
	(yellow)	(med)	272.38	.40	2658.44	2386.06	
	(red)	(deep)	281.48	.42	2658.42	2376.94	
BR-5	tall	(shal)	335.26	.19	2521.28	2186.02	
	medium	(med)	342.21	.41	2521.07	2178.86	
	short	(deep)	343.80	.64	2520.84	2177.04	
BR-10	tall	(shal)	307.63	.25	2561.14	2253.51	
	next tall	(sh/med)	321.59	.42	2560.97	2239.38	
	next short	(dp/med)	362.35	.54	2560.85	2198.50	
	short	(deep)	364.62	.68	2560.71	2196.09	
BR-6	tall	(shal)	163.85	.38	2353.75	2189.90	
	medium	(med)	164.88	.70	2353.43	2188.55	
	short	(deep)	149.30	1.08	2353.05	2203.75	
NR-2	tall	(shal)	133.07	.32	2317.38	2184.31	
	medium	(med)	141.08	.59	2317.11	2176.08	
	short	(deep)	139.46	.79	2316.91	2177.45	
NR-1	(red)	(shal)	95.18	.91	2271.67	2176.49	
	(yellow)	(med)	69.48	.33	2278.26	2208.78	
	(white)	(deep)	101.78	.93	2267.65	2165.87	
MW-32	tall	(shal)	241.93	.31	~2418.69	2176.76	
	next tall	(sh/med)	243.08	.42	~2418.58	2175.50	
	next short	(dp/med)	241.92	.50	~2418.50	2176.58	
	short	(deep)	240.51	.64	~2418.36	2177.85	
BR-4			264.51	.27	2377.20	2112.69	
SW Wells (SE Mon Well)			396.75		2582.82	2186.07	

Indian Wells Valley Groundwater Project
Depth to Water Measurements

All measurements on Sept 30 and Oct 1, 1992, by Dennis Watt using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

Well	Piezometer		Depth to Water	TOC to TOP	Comments
BR-3	medium	(shal)		.43	Confirmed short s/u
	tall	(med)		.39	is deep piezo w/NACC
	short	(deep)		.64	thief sampler. Deep EC=11,450
BR-1	tall	(shal)	185.39	.12	Sept 30
	next tall	(sh/med)	183.04	.25	
	next short	(dp/med)	187.79	.36	
	short	(deep)	195.73	.39	
BR-2	tall (blue)	(shal)		.20	
	(yellow)	(med)		.40	Re-sound bottoms
	(red)	(deep)		.42	
BR-5	tall	(shal)	335.30	.19	Oct 1
	medium	(med)	342.39	.41	
	short	(deep)	344.08	.64	
BR-10	tall	(shal)	308.43	.25	
	next tall	(sh/med)	321.76	.42	
	next short	(dp/med)	362.14	.54	
	short	(deep)	363.95	.68	
BR-6	tall	(shal)	163.95	.38	
	medium	(med)	165.00	.70	
	short	(deep)	149.35	1.08	
NR-2	tall	(shal)		.32	
	medium	(med)		.59	
	short	(deep)		.79	
NR-1	(red)	(shal)		.91	
	(yellow)	(med)		.33	Valve top = TOP
	(white)	(deep)		.93	
MW-32	tall	(shal)		.31	
	next tall	(sh/med)		.42	
	next short	(dp/med)		.50	
	short	(deep)		.64	
BR-4				.27	

Sept 30, 1992

SW Wells	Mon #1 [E]	Wood? at ~ 341'	Muted thud sound
	Mon #2 [SE]	396.93	
	Prod Well	373.85	TOP (2" pipe)
	Mon #3 [S]	201.82	

April 7, 1989
(from Tom Field, Krieger and Stewart)

SW Wells	Mon #1	365.9	TOC
	Mon #2	392.4	"
	Mon #3	196.2	"

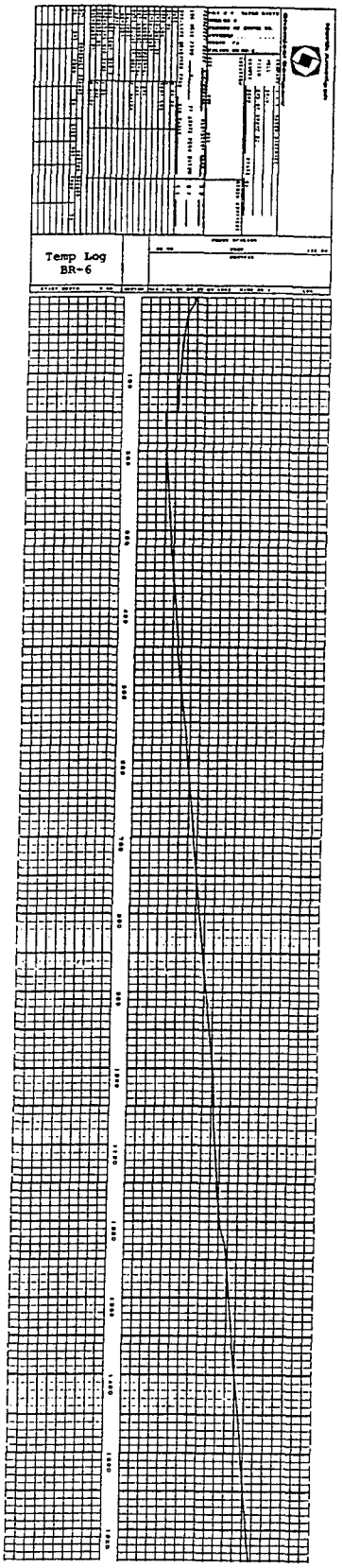
Indian Wells Valley Groundwater Project
Depth to Water Measurements

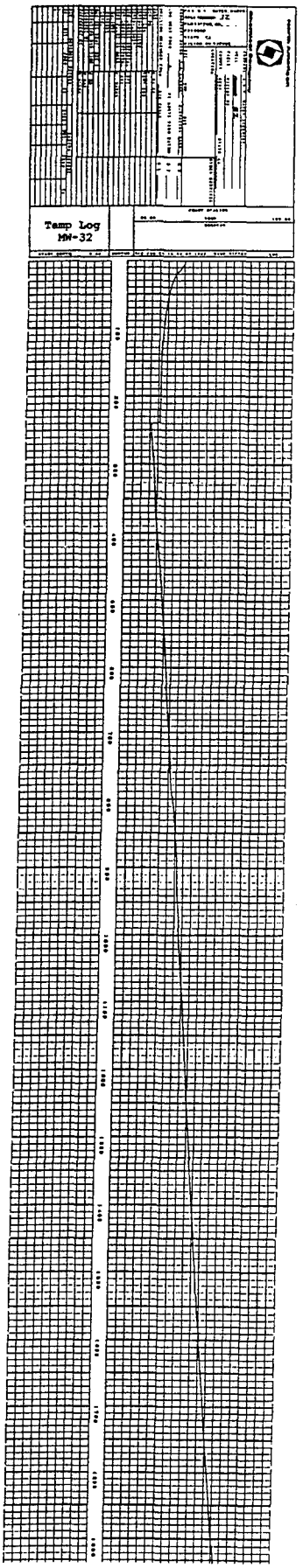
All measurements on January 5, 1993, by Dennis Watt using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

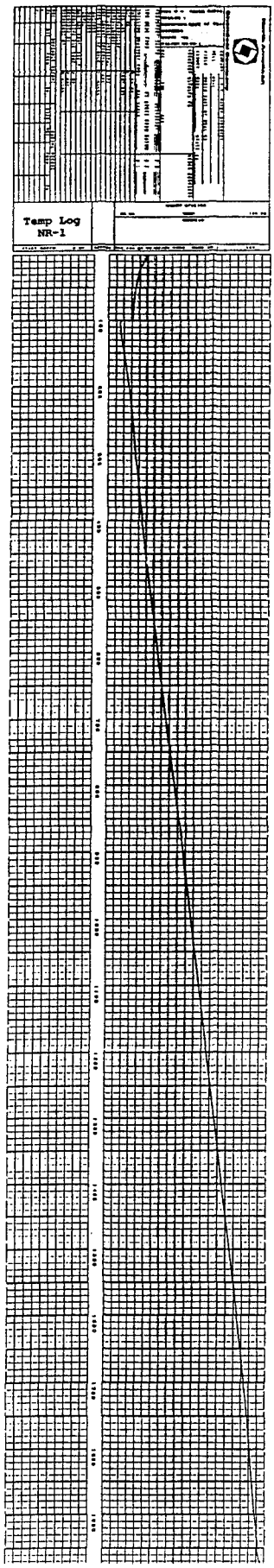
Well	Piezometer		Depth to Water	TOC to TOP	Comments
BR-3	medium	(shal)		.43	
	tall	(med)		.39	NACC test w/thief
	short	(deep)	319.2?	.64	tall = med piezo
BR-1	tall	(shal)	185.38	.12	
	next tall	(sh/med)	183.38	.25	
	next short	(dp/med)	188.18	.36	
	short	(deep)	196.27	.39	
BR-2	tall(blue)	(shal)	276.14	.20	
	(red)	(med)	272.48	.40	
	(yellow)	(deep)	281.68	.42	
BR-5	tall	(shal)	335.43	.19	
	medium	(med)	342.15	.41	
	short	(deep)	343.73	.64	
BR-10	tall	(shal)	307.70	.25	
	next tall	(sh/med)	322.80	.42	
	next short	(dp/med)	362.15	.54	
	short	(deep)	363.87	.68	
BR-6	tall	(shal)	163.08	.38	
	medium	(med)	164.85	.70	
	short	(deep)	149.63	1.08	
NR-2	tall	(shal)	132.68	.32	
	medium	(med)	140.81	.59	
	short	(deep)	139.22	.79	
NR-1	(red)	(shal)	95.21	.91	
	(yellow)	(med)	68.61	.33	Valve top = TOP
	(white)	(deep)	101.44	.93	
MW-32	tall	(shal)	241.77	.31	
	next tall	(sh/med)	241.98	.42	
	next short	(dp/med)	241.44	.50	
	short	(deep)	240.55	.64	
BR-4			250.00	.27	

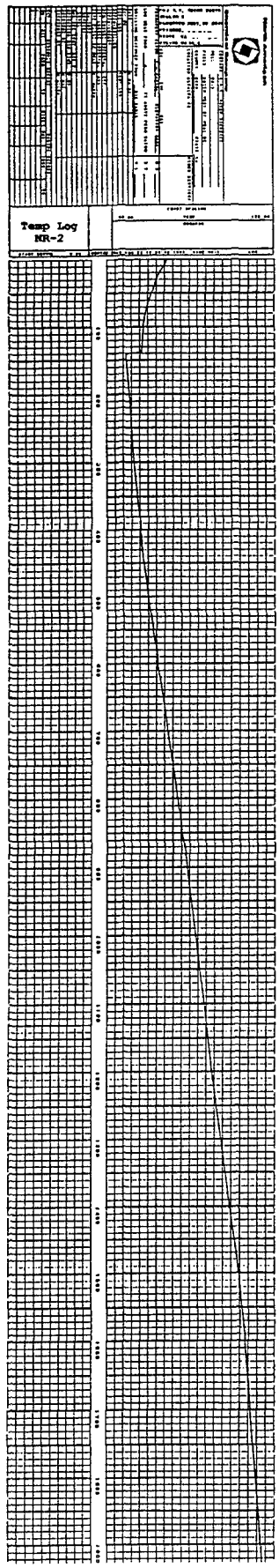
SW Wells	Mon #1 [E]	Wood block at ~ 341'
	Mon #2 [SE]	397.20
	Prod Well	
	Mon #3 [S]	201.96

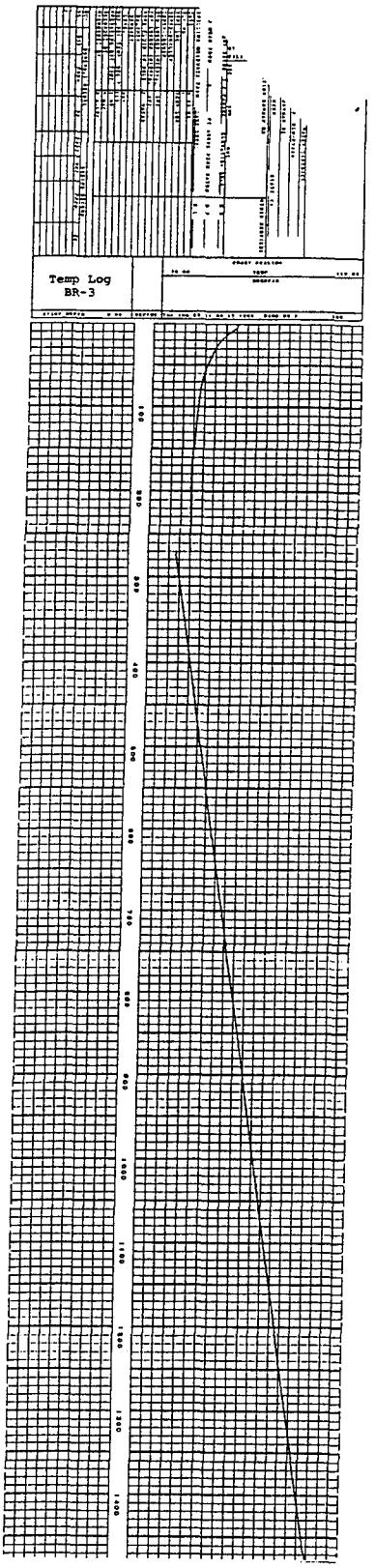
Appendix E
TEMPERATURE GRADIENT PROFILES

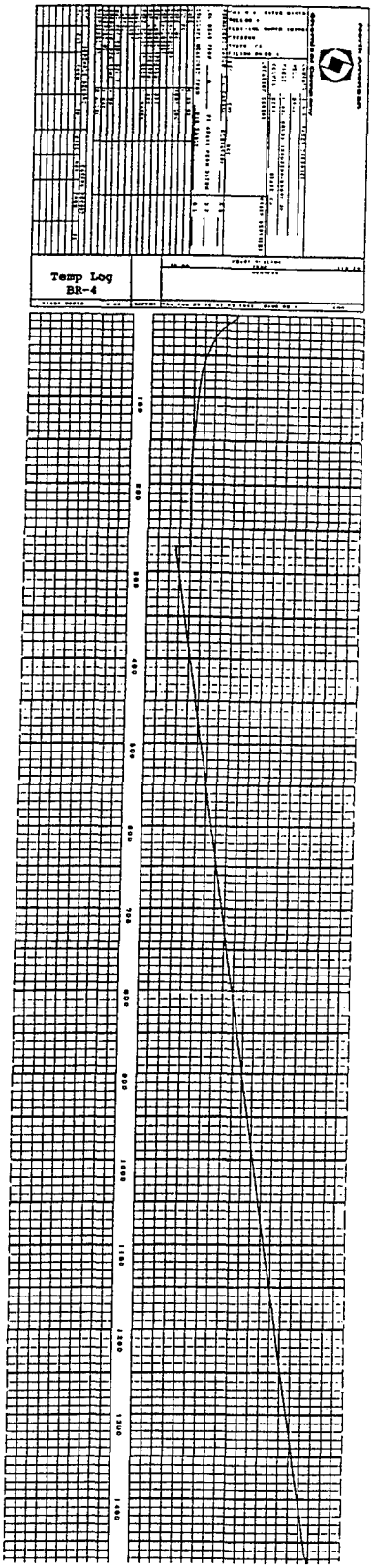

Temp Log
BR-6

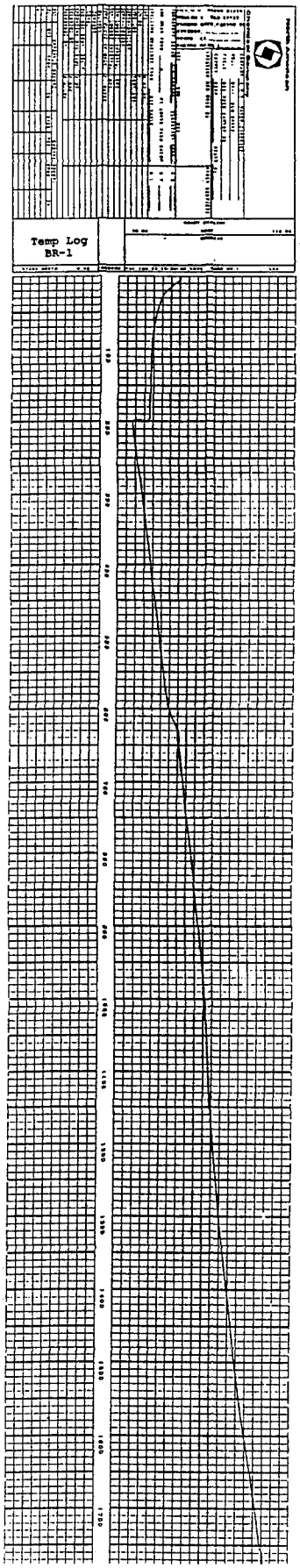

Temp Log
MW-32

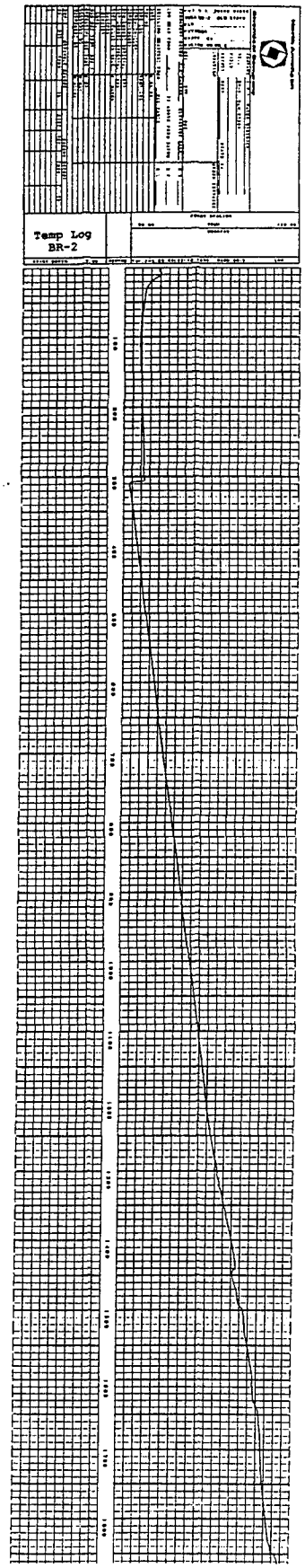

Temp Log
NR-1


Temp Log
NR-2


Temp Log
BR-3


Temp Log
BR-4


Temp Log
BR-1


Temp Log
BR-2